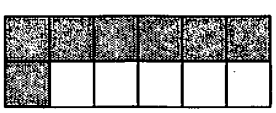
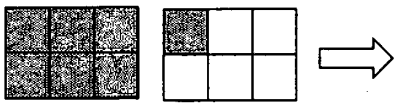
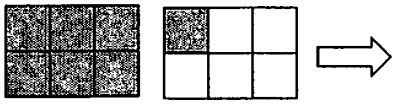
Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples
FRACTIONS	We can use fractions when describing a part of a whole. Use a fraction to describe the model below:  → $\frac{7}{12}$ This fraction is read as Seven twelfths.
PARTS of a FRACTION	Numerator → $\frac{2}{3}$ ← Denominator
RATIONAL NUMBERS	All fractions or numbers that can be written as fractions
MIXED NUMBERS	A **mixed number** is a number consisting of a whole number greater than 0 and a fraction. Use a mixed number to represent the model below:  → $1\frac{1}{6}$
IMPROPER FRACTION	An **improper fraction** is a fraction in which the numerator is greater than the denominator. Use an improper fraction to represent the model below:  → $\frac{7}{6}$
CONVERTING between FORMS	**To write a mixed number as an improper fraction:** Multiply the denominator with the whole number, then add the numerator. Keep the denominator. $2\frac{3}{5} = \frac{13}{5}$ **Write each mixed number as an improper fraction.** **1.** $4\frac{1}{2}$ $\frac{9}{2}$ **2.** $7\frac{2}{3}$ $\frac{23}{3}$ **3.** $2\frac{5}{8}$ $\frac{21}{8}$

4. $1\frac{3}{14}$ $\frac{17}{14}$

5. $4\frac{9}{10}$ $\frac{49}{10}$

6. $3\frac{7}{12}$ $\frac{43}{12}$

To write an improper fraction as a mixed number: Divide the numerator by the dnominator. The quotient is the whole number and the remainder is the numerarator of the fraction. Keep the denominator.

$\frac{4}{3} = 3\overline{)4}$ (1, remainder 1) $= 1\frac{1}{3}$

Write each improper fraction as a mixed number.

7. $\frac{17}{4}$ $4\overline{)17}$ (4, -16, remainder 1) $= 4\frac{1}{4}$

8. $\frac{13}{9}$ $9\overline{)13}$ (1, -9, remainder 4) $= 1\frac{4}{9}$

9. $\frac{29}{6}$ $6\overline{)29}$ (4, -24, remainder 5) $= 4\frac{5}{6}$

10. $\frac{26}{3}$ $3\overline{)26}$ (8, -24, remainder 2) $= 8\frac{2}{3}$

11. $\frac{32}{15}$ $15\overline{)32}$ (2, -30, remainder 2) $= 2\frac{2}{15}$

12. $\frac{38}{7}$ $7\overline{)38}$ (5, -35, remainder 3) $= 5\frac{3}{7}$

SIMPLEST FORM

A fraction is in **simplest form** when the greatest common factor (GCF) of both the numerator and denominator is 1. To write a fraction in simplest form, divide the numerarator and denominator by the GCF.

$\frac{15}{24} \overset{\div 3}{=} \frac{5}{8}$

Simplify. Write your answer as a mixed number when possible.

13. $\frac{6}{8} \overset{\div 2}{=} \frac{3}{4}$

14. $\frac{5}{15} \overset{\div 5}{=} \frac{1}{3}$

15. $\frac{4}{32} \overset{\div 4}{=} \frac{1}{8}$

16. $1\frac{4}{10} = 1\frac{2}{5}$

17. $5\frac{8}{12} = 5\frac{2}{3}$

18. $2\frac{32}{40} = 2\frac{4}{5}$

19. $\frac{24}{16} = \frac{3}{2} = 1\frac{1}{2}$

20. $\frac{18}{15} = \frac{6}{5} = 1\frac{1}{5}$

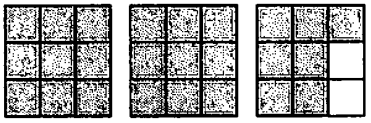
21. $\frac{42}{12} = \frac{7}{2} = 3\frac{1}{2}$

Name: _____ **Unit 3:** Rational Numbers

Date: _____ **Per:** _____ **Homework 1:** Writing & Simplifying Fractions

Directions: Describe each model using **(a)** a mixed number and **(b)** an improper fraction.

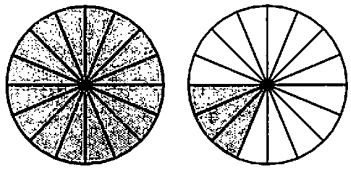
1.



a) $2\frac{7}{9}$

b) $\frac{25}{9}$

2.



a) $1\frac{3}{16}$

b) $\frac{19}{16}$

Directions: Write each number as an improper fraction.

3. $2\frac{1}{6}$ $\frac{13}{6}$

4. $1\frac{2}{7}$ $\frac{9}{7}$

5. $6\frac{3}{4}$ $\frac{27}{4}$

6. $3\frac{5}{12}$ $\frac{41}{12}$

Directions: Write each fraction as a mixed number.

7. $\frac{8}{3}$ $3\overline{)8}$ $2\frac{2}{3}$

8. $\frac{29}{10}$ $10\overline{)29}$ $2\frac{9}{10}$

9. $\frac{47}{6}$ $6\overline{)47}$ $7\frac{5}{6}$

10. $\frac{13}{4}$ $4\overline{)13}$ $3\frac{1}{4}$

11. $\frac{34}{15}$ $15\overline{)34}$ $2\frac{4}{15}$

12. $\frac{62}{7}$ $7\overline{)62}$ $8\frac{6}{7}$

Directions: Simplify. Write your answer as a mixed number when possible.

13. $\frac{16}{28} = \frac{4}{7}$

14. $\frac{18}{45} = \frac{2}{5}$

15. $\frac{24}{32} = \frac{3}{4}$

16. $2\frac{6}{48} = 2\frac{1}{8}$

17. $1\frac{15}{18} = 1\frac{5}{6}$

18. $8\frac{12}{54} = 8\frac{2}{9}$

19. $\frac{42}{12} = \frac{7}{2} = 3\frac{1}{2}$ $2\overline{)7}$

20. $\frac{66}{48} = \frac{11}{8} = 1\frac{3}{8}$ $8\overline{)11}$

21. $\frac{120}{36} = \frac{10}{3} = 3\frac{1}{3}$ $3\overline{)10}$

22. $\frac{63}{48} = \frac{21}{16} = 1\frac{5}{16}$ $16\overline{)21}$

23. $\frac{86}{20} = \frac{43}{10} = 4\frac{3}{10}$ $10\overline{)43}$

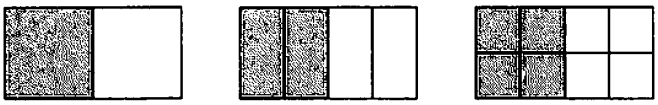
24. $\frac{87}{12} = \frac{29}{4} = 7\frac{1}{4}$ $4\overline{)29}$

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples

EQUIVALENT FRACTIONS

Fractions that represent the same value are **equivalent fractions.**



$\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$

WRITING EQUIVALENT FRACTIONS

To create equivalent fractions, multiply the numerator and denominator by the same value.

List two equivalent fractions:

$\frac{3}{4} = \frac{6}{8} = \frac{12}{16}$

Give two equivalent fractions for each fraction.

1. $\frac{4}{5}$ $\frac{20}{25}$, $\frac{12}{15}$

2. $\frac{11}{12}$ $\frac{22}{24}$, $\frac{44}{48}$

3. $\frac{14}{9}$ $\frac{42}{27}$, $\frac{70}{45}$

Write a number in the box that makes the fractions equivalent.

4. $\frac{1}{2} = \frac{\boxed{3}}{6}$

5. $\frac{15}{20} = \frac{3}{\boxed{4}}$

6. $\frac{16}{18} = \frac{\boxed{8}}{9}$

7. $\frac{3}{\boxed{10}} = \frac{12}{40}$

8. $\frac{\boxed{16}}{40} = \frac{2}{5}$

9. $\frac{7}{3} = \frac{42}{\boxed{18}}$

ARE THEY EQUIVALENT?

To determine if fractions are equivalent, simplify both fractions.
Detemine if the given pair of fractions are equivalent.

10. $\frac{8}{12}, \frac{4}{6}$ $\frac{2}{3}, \frac{2}{3}$ Yes!

11. $\frac{1}{4}, \frac{4}{20}$ $\frac{1}{4}, \frac{1}{5}$ No!

12. $\frac{6}{18}, \frac{5}{15}$ $\frac{1}{3}, \frac{1}{3}$ Yes!

13. $\frac{27}{18}, \frac{21}{14}$ $\frac{3}{2}, \frac{3}{2}$ Yes!

14. $\frac{18}{24}, \frac{6}{10}$ $\frac{3}{4}, \frac{3}{5}$ No!

15. $\frac{21}{9}, \frac{28}{12}$ $\frac{7}{3}, \frac{7}{3}$ Yes!

LIKE FRACTIONS

Fractions with the same denominator

Example: $5/6$, $11/6$, $3\ 1/6$

UNLIKE FRACTIONS

Fractions with different denominators

Example: $7/11, 2/9, 6/5, 4\frac{1}{3}$

COMPARING FRACTIONS

Given Fraction A = $\frac{3}{4}$ and Fraction B = $\frac{5}{6}$, which fraction is greater?

To compare, we can rewrite them as like fractions using a common denominator. Follow the steps below to compare Fraction A to Fraction B.

❶	Find the least common multiple (LCM) of the denominators.	LCM = 12
❷	Rewrite Fraction A using the LCM as the denominator.	$\frac{3}{4} = \frac{9}{12}$
❸	Rewrite Fraction B using the LCM as the denominator.	$\frac{5}{6} = \frac{10}{12}$
❹	Use a <, >, or = symbol to compare the fractions.	$\frac{3}{4} < \frac{5}{6}$

Compare using a <, >, or = symbol.

16. $\frac{3}{7} > \frac{1}{3}$ LCM: 21

$\frac{9}{21}$ $\frac{7}{21}$

17. $\frac{4}{5} < \frac{13}{15}$ LCM: 15

$\frac{12}{15}$

18. $\frac{10}{4} = \frac{15}{6}$ LCM: 12

$\frac{30}{12}$ $\frac{30}{12}$

19. $\frac{5}{6} < \frac{23}{24}$ LCM: 24

$\frac{20}{24}$

20. $\frac{7}{4} > \frac{17}{10}$ LCM: 20

$\frac{35}{20}$ $\frac{34}{20}$

21. $\frac{8}{12} = \frac{10}{15}$ LCM: 60

$\frac{40}{60}$ $\frac{40}{60}$

ORDERING FRACTIONS

Order the fractions from least to greatest.

22. $\frac{1}{2}, \frac{2}{5}, \frac{7}{20}$ LCM: 20

$\frac{10}{20}, \frac{8}{20}, \frac{7}{20}$

$\frac{7}{20}, \frac{2}{5}, \frac{1}{2}$

23. $\frac{5}{9}, \frac{2}{3}, \frac{11}{18}$ LCM: 18

$\frac{10}{18}, \frac{12}{18}, \frac{11}{18}$

$\frac{5}{9}, \frac{11}{18}, \frac{2}{3}$

Order the fractions from greatest to least.

24. $\frac{3}{5}, \frac{7}{10}, \frac{4}{6}$ LCM: 30

$\frac{18}{30}, \frac{21}{30}, \frac{20}{30}$

$\frac{7}{10}, \frac{4}{6}, \frac{3}{5}$

25. $\frac{9}{4}, \frac{11}{6}, \frac{5}{2}$ LCM: 12

$\frac{27}{12}, \frac{22}{12}, \frac{30}{12}$

$\frac{5}{2}, \frac{9}{4}, \frac{11}{6}$

Name: _____ **Unit 3:** Rational Numbers

Date: _____ **Per:** _____ **Homework 2:** Equivalent Fractions; Comparing & Ordering Fractions

Directions: Give two equivalent fractions for each fraction.

1. $\frac{7}{8}$ $\frac{14}{16}, \frac{21}{24}$

2. $\frac{4}{15}$ $\frac{8}{30}, \frac{12}{45}$

3. $\frac{19}{3}$ $\frac{38}{6}, \frac{57}{9}$

Directions: Write a number in the box that makes the fractions equivalent.

4. $\frac{5}{7} = \frac{\boxed{30}}{42}$

5. $\frac{12}{27} = \frac{4}{\boxed{9}}$

6. $\frac{\boxed{1}}{6} = \frac{5}{30}$

7. $\frac{52}{\boxed{12}} = \frac{13}{3}$

Directions: Determine whether the fractions are equivalent.

8. $\frac{24}{32}, \frac{14}{18}$ $\frac{3}{4}, \frac{7}{9}$ No!

9. $\frac{6}{16}, \frac{21}{56}$ $\frac{3}{8}, \frac{3}{8}$ Yes!

10. $\frac{45}{20}, \frac{27}{12}$ $\frac{9}{4}, \frac{9}{4}$ Yes!

Directions: Compare the fractions using a <, >, or = symbol. Justify using equivalent fractions.

11. $\frac{3}{4} \bigcirc \frac{4}{5}$ LCM: 20
$\frac{15}{20}$ $\frac{16}{20}$

12. $\frac{6}{10} \bigcirc \frac{9}{15}$ LCM: 30
$\frac{18}{30}$ $\frac{18}{30}$

13. $\frac{3}{16} \bigcirc \frac{1}{6}$ LCM: 48
$\frac{9}{48}$ $\frac{8}{48}$

14. $\frac{15}{4} \bigcirc \frac{33}{9}$ LCM: 36
$\frac{135}{36}$ $\frac{132}{36}$

15. $\frac{25}{6} \bigcirc \frac{13}{3}$ LCM: 6
$\frac{26}{6}$

16. $\frac{16}{9} \bigcirc \frac{80}{45}$ LCM: 45
$\frac{80}{45}$

17. Order from least to greatest: $\frac{15}{4}, \frac{29}{8}, \frac{23}{6}$
LCM: 24
$\frac{90}{24}, \frac{87}{24}, \frac{92}{24}$
$\frac{29}{8}, \frac{15}{4}, \frac{23}{6}$

18. Order from greatest to least: $\frac{4}{5}, \frac{11}{16}, \frac{31}{40}$
LCM: 80
$\frac{64}{80}, \frac{55}{80}, \frac{62}{80}$
$\frac{4}{5}, \frac{31}{40}, \frac{11}{16}$

19. Amy, Josh, and Rhea were each given the same number of raffle tickets to sell. The table below shows the fraction of their tickets that they sold. Who sold the fewest tickets?

Amy	Josh	Rhea
$\frac{2}{3}$	$\frac{7}{12}$	$\frac{3}{5}$

LCM: 60
$\frac{40}{60}$ $\frac{35}{60}$ $\frac{36}{60}$
Josh

20. The table below gives the weights, in ounces, of three packages. Which package weighs the most?
LCM: 42

A	B	C
$1\frac{5}{6}$	$1\frac{13}{21}$	$1\frac{2}{3}$

$1\frac{35}{42}$ $1\frac{26}{42}$ $1\frac{28}{42}$
Package A

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples

ADDING & SUBTRACTING *fractions*
(with **Like Denominators**)

Follow the steps below to add and subtract fractions with like denominators.

1. Write any mixed numbers as improper fractions.
2. Add/Subtract the numerators and keep the common denominator.
3. Simplify, if necessary.

Find each sum or difference. Give all answers in simplest form.

1. $\frac{3}{20}+\frac{7}{20} = \frac{10}{20}$

$= \boxed{\frac{1}{2}}$

2. $\frac{13}{16}-\frac{1}{16} = \frac{12}{16}$

$= \boxed{\frac{3}{4}}$

3. $3\frac{1}{10}-\frac{7}{10} = \frac{31}{10}-\frac{7}{10}$

$= \frac{24}{10}$

$= \frac{12}{5} = \boxed{2\frac{2}{5}}$

4. $5\frac{1}{12}+1\frac{7}{12} = \frac{61}{12}+\frac{19}{12}$

$= \frac{80}{12}$

$= \frac{20}{3} = \boxed{6\frac{2}{3}}$

5. $1\frac{7}{8}+3\frac{3}{8} = \frac{15}{8}+\frac{27}{8}$

$= \frac{42}{8}$

$= \frac{21}{4} = \boxed{5\frac{1}{4}}$

6. $6\frac{1}{4}-2\frac{3}{4} = \frac{25}{4}-\frac{11}{4}$

$= \frac{14}{4}$

$= \frac{7}{2} = \boxed{3\frac{1}{2}}$

APPLICATIONS

7. One cat weighs $12\frac{5}{9}$ pounds and another cat weighs $16\frac{7}{9}$ pounds. Find their combined weight.

$12\frac{5}{9}+16\frac{7}{9} = \frac{113}{9}+\frac{151}{9} = \frac{264}{9}$

$= \frac{88}{3} = \boxed{29\frac{1}{3}\text{ lbs}}$

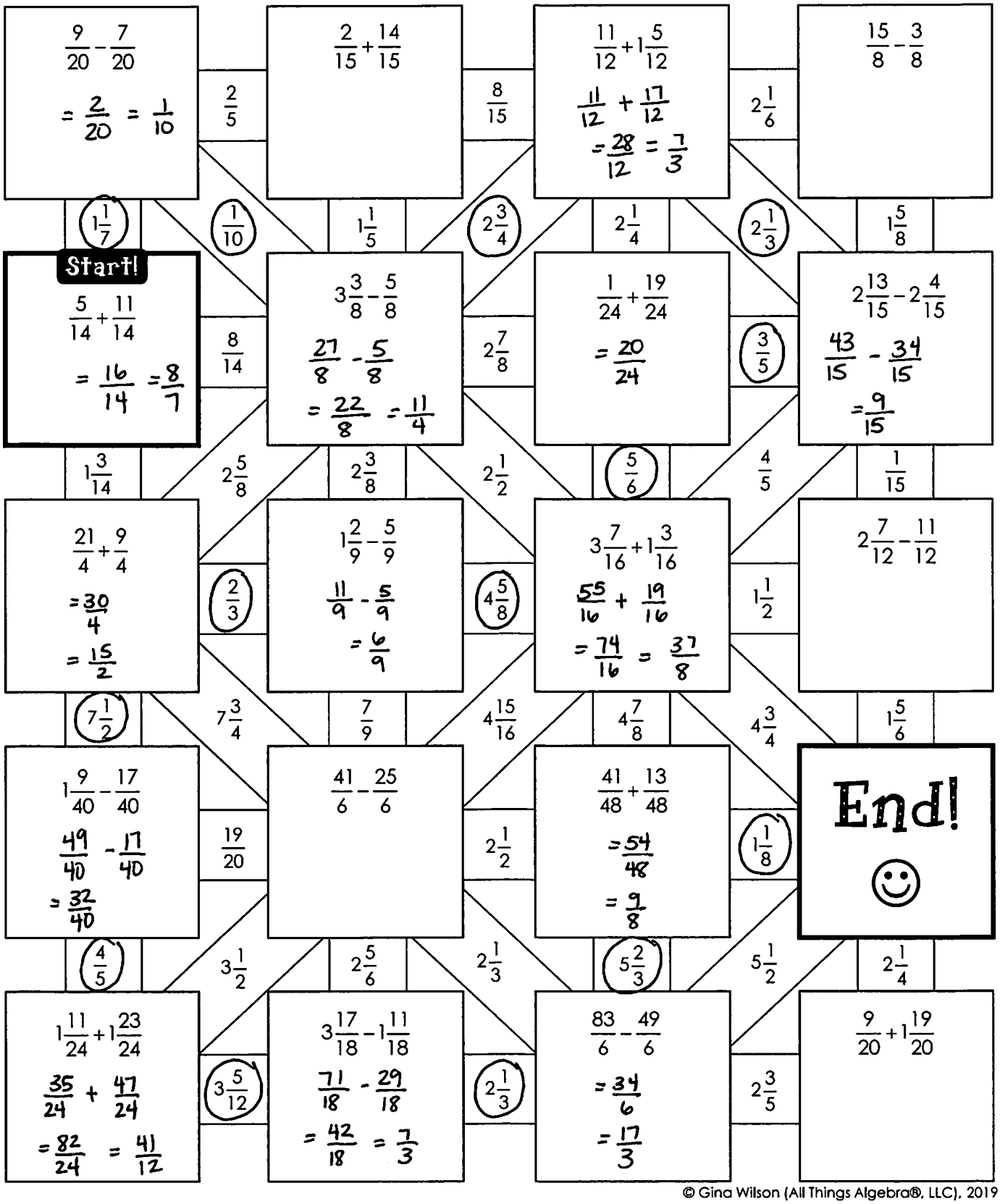
8. It rained $2\frac{7}{15}$ inches in April and $3\frac{1}{15}$ inches in May. How many more inches did it rain in May than April?

$3\frac{1}{15}-2\frac{7}{15} = \frac{46}{15}-\frac{37}{15} = \frac{9}{15}$

$= \boxed{\frac{3}{5}\text{ in}}$

ADDING & SUBTRACTING FRACTIONS (with like denominators!)

Directions: Find each sum or difference. Write all answers as mixed numbers in simplest form. Use your solutions to navigate through the maze. **SHOW ALL WORK!**



Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples

ADDING & SUBTRACTING *fractions*

(with **UNLIKE** Denominators)

❶	Write all mixed numbers as improper fractions.
❷	Find the least common multiple (LCM) of the denominators.
❸	Rewrite the fractions using the LCM as the denominator. Adjust each numerator to reflect the change in the denominator.
❹	Add/Subtract the numerators and keep the common denominator.
❺	Simplify, if necessary.

Find each sum or difference. Give all answers in simplest form.

1. $\frac{13}{12}+\frac{3}{4}$ (LCM: 12)

$\frac{13}{12}+\frac{9}{12}=\frac{22}{12}$

$=\frac{11}{6}=\boxed{1\frac{5}{6}}$

2. $\frac{9}{4}-\frac{5}{8}$ (LCM: 8)

$\frac{18}{8}-\frac{5}{8}=\frac{13}{8}$

$=\boxed{1\frac{5}{8}}$

3. $\frac{13}{6}+\frac{15}{4}$ (LCM: 12)

$\frac{26}{12}+\frac{45}{12}=\frac{71}{12}$

$=\boxed{5\frac{11}{12}}$

4. $\frac{7}{4}-\frac{3}{7}$ (LCM: 28)

$\frac{49}{28}-\frac{12}{28}=\frac{37}{28}$

$=\boxed{1\frac{9}{28}}$

5. $2-\frac{1}{5}$ (LCM: 5)

$\frac{10}{5}-\frac{1}{5}=\frac{9}{5}$

$=\boxed{1\frac{4}{5}}$

6. $\frac{41}{6}+\frac{3}{2}$ (LCM: 6)

$\frac{41}{6}+\frac{9}{6}=\frac{50}{6}$

$=\frac{25}{3}=\boxed{8\frac{1}{3}}$

7. $1\frac{5}{9}+4\frac{5}{6}$ (LCM: 18)

$\frac{14}{9}+\frac{29}{6}=\frac{28}{18}+\frac{87}{18}$

$=\frac{115}{18}$

$=\boxed{6\frac{7}{18}}$

8. $4\frac{11}{12}-\frac{5}{9}$ (LCM: 36)

$\frac{59}{12}-\frac{5}{9}=\frac{177}{36}-\frac{20}{36}$

$=\frac{157}{36}$

$=\boxed{4\frac{13}{36}}$

9. $\frac{1}{6}+2\frac{1}{2}$ (LCM: 6)

$\frac{1}{6}+\frac{5}{2} = \frac{1}{6}+\frac{15}{6}$

$= \frac{16}{6}$

$= \frac{8}{3} = \boxed{2\frac{2}{3}}$

10. $3\frac{5}{8}+5\frac{11}{12}$ (LCM: 24)

$\frac{29}{8}+\frac{71}{12} = \frac{87}{24}+\frac{142}{24}$

$= \frac{229}{24}$

$= \boxed{9\frac{13}{24}}$

11. $1\frac{3}{4}+\left(\frac{3}{2}+\frac{1}{3}\right)$

$\frac{7}{4}+\left(\frac{9}{6}+\frac{2}{6}\right)$

$\frac{7}{4}+\frac{11}{6}$

$\frac{21}{12}+\frac{22}{12} = \frac{43}{12} = \boxed{3\frac{7}{12}}$

12. $\frac{4}{5}-\frac{1}{10}+4\frac{3}{8}$

$\frac{8}{10}-\frac{1}{10}+\frac{35}{8}$

$\frac{7}{10}+\frac{35}{8}$

$\frac{28}{40}+\frac{175}{40} = \frac{203}{40} = \boxed{5\frac{3}{40}}$

APPLICATIONS

13. Jordan made apple-cranberry juice by combining $1\frac{7}{6}$ liters of apple juice with $1\frac{7}{8}$ liters of cranberry juice. How many liters of apple-cranberry juice does he have?

$1\frac{7}{6}+1\frac{7}{8} = \frac{13}{6}+\frac{15}{8} = \frac{52}{24}+\frac{45}{24}$

$= \frac{97}{24} = \boxed{4\frac{1}{24} \text{ liters}}$

14. Marissa is making a cake that calls for $2\frac{3}{4}$ cups of sugar. If she has $1\frac{5}{6}$ cups, how many more cups of sugar does she need?

$2\frac{3}{4}-1\frac{5}{6} = \frac{11}{4}-\frac{11}{6} = \frac{33}{12}-\frac{22}{12}$

$= \boxed{\frac{11}{12} \text{ cups}}$

15. Elijah took a 2-day road trip. He used $12\frac{5}{12}$ gallons of gas on the first day and $9\frac{1}{18}$ gallons of gas on the second day. How many total gallons of gas did he use?

$12\frac{5}{12}+9\frac{1}{18} = \frac{149}{12}+\frac{163}{18} = \frac{447}{36}+\frac{326}{36}$

$= \frac{773}{36} = \boxed{21\frac{17}{36} \text{ gallons}}$

16. River Run Middle School consists of grades 6, 7, and 8. If $\frac{3}{8}$ of the students are in seventh grade and $\frac{1}{3}$ of the students are in eighth grade, what fraction of the students are in sixth grade?

$1-\left(\frac{3}{8}+\frac{1}{3}\right) = 1-\left(\frac{9}{24}+\frac{8}{24}\right) = 1-\frac{17}{24}$

$= \frac{24}{24}-\frac{17}{24} = \boxed{\frac{7}{24} \text{ students}}$

WHERE DID CAPTAIN HOOK *buy his hook?*

Directions: Find each sum or difference. Show all work on a separate sheet of paper. After completing each set, find matching answers. One will have a letter and the other a number. Write the letter in the matching numbered box at the bottom of the page.

SET 1 (Write each answer as a MIXED NUMBER in simplest form.)

T.	$\frac{3}{4}+\frac{1}{2}$	$1\frac{1}{4}$	6.	$1\frac{1}{6}+\frac{1}{8}$	$1\frac{7}{24}$
D.	$2\frac{5}{12}-1\frac{1}{8}$	$1\frac{7}{24}$	15.	$1\frac{3}{4}-\frac{5}{6}$	$\frac{11}{12}$
E.	$1\frac{1}{4}-\frac{1}{3}$	$\frac{11}{12}$	4.	$1\frac{1}{2}+\frac{7}{8}$	$2\frac{3}{8}$
O.	$\frac{5}{6}+1\frac{13}{24}$	$2\frac{3}{8}$	9.	$1\frac{1}{16}-\frac{1}{2}$	$\frac{9}{16}$
N.	$\frac{1}{3}+\frac{11}{48}$	$\frac{9}{16}$	12.	$1\frac{3}{5}-\frac{7}{20}$	$1\frac{1}{4}$

SET 2 (Write each answer as a MIXED NUMBER in simplest form.)

A.	$1\frac{2}{3}-\frac{4}{9}$	$1\frac{2}{9}$	3.	$1\frac{9}{10}+\frac{5}{6}$	$2\frac{11}{15}$
S.	$\frac{23}{36}+\frac{5}{12}$	$1\frac{1}{18}$	8.	$\frac{1}{4}+\frac{35}{36}$	$1\frac{2}{9}$
E.	$3\frac{1}{5}-\frac{8}{15}$	$2\frac{2}{3}$	11.	$1\frac{5}{9}-\frac{1}{2}$	$1\frac{1}{18}$
R.	$\frac{3}{4}+1\frac{1}{12}$	$1\frac{5}{6}$	14.	$1\frac{1}{2}+\frac{1}{3}$	$1\frac{5}{6}$
C.	$1\frac{1}{3}+1\frac{2}{5}$	$2\frac{11}{15}$	2.	$3\frac{1}{6}-\frac{1}{2}$	$2\frac{2}{3}$

SET 3 (Write each answer as a MIXED NUMBER in simplest form.)

N.	$\frac{3}{4}+\frac{9}{10}$	$1\frac{13}{20}$	1.	$5\frac{1}{6}-4\frac{4}{9}$	$\frac{13}{18}$
S.	$1\frac{1}{6}-\frac{4}{9}$	$\frac{13}{18}$	13.	$2\frac{1}{3}-\frac{5}{6}$	$1\frac{1}{2}$
D.	$\frac{3}{5}+\frac{2}{3}$	$1\frac{4}{15}$	7.	$\frac{1}{6}+\frac{1}{2}$	$\frac{2}{3}$
H.	$1\frac{1}{4}-\frac{7}{12}$	$\frac{2}{3}$	5.	$1\frac{1}{15}+\frac{7}{12}$	$1\frac{13}{20}$
O.	$1\frac{2}{5}+\frac{1}{10}$	$1\frac{1}{2}$	10.	$1\frac{1}{2}-\frac{7}{30}$	$1\frac{4}{15}$

ANSWER: *he bought it at a*

1.	2.	3.	4.	5.	6.		7.	8.	9.	10.		11.	12.	13.	14.	15.	
S	E	C	O	N	D		H	A	N	D		S	T	O	R	E	!

Name: _____ **Unit 3:** Rational Numbers

Date: _____ **Per:** _____ **Homework 3:** Adding & Subtracting Fractions

**** This is a 2-page document! ****

Directions: Find each sum or difference. Write all answers in simplest form.

1. $\frac{17}{18}+\frac{7}{18}$ $= \frac{24}{18}$

$= \frac{4}{3} = \boxed{1\frac{1}{3}}$

2. $\frac{23}{24}-\frac{7}{24}$ $= \frac{16}{24}$

$= \boxed{\frac{2}{3}}$

3. $1\frac{5}{9}+2\frac{7}{9}$ $= \frac{14}{9} + \frac{25}{9}$

$= \frac{39}{9}$

$= \frac{13}{3} = \boxed{4\frac{1}{3}}$

4. $5\frac{1}{8}-2\frac{5}{8}$ $= \frac{41}{8} - \frac{21}{8}$

$= \frac{20}{8}$

$= \frac{5}{2} = \boxed{2\frac{1}{2}}$

5. $\frac{7}{10}+\frac{1}{20}$ (LCM: 20)

$\frac{14}{20} + \frac{1}{20} = \frac{15}{20}$

$= \boxed{\frac{3}{4}}$

6. $\frac{3}{10}-\frac{1}{4}$ (LCM: 20)

$\frac{6}{20} - \frac{5}{20} = \boxed{\frac{1}{20}}$

7. $4\frac{1}{12}+1\frac{3}{4}$ (LCM: 12)

$\frac{49}{12} + \frac{7}{4} = \frac{49}{12} + \frac{21}{12}$

$= \frac{70}{12} = \frac{35}{6} = \boxed{5\frac{5}{6}}$

8. $5\frac{1}{2}-1\frac{5}{6}$ (LCM: 6)

$\frac{11}{2} - \frac{11}{6} = \frac{33}{6} - \frac{11}{6}$

$= \frac{22}{6}$

$= \frac{11}{3} = \boxed{3\frac{2}{3}}$

9. $3\frac{5}{12}-\left(\frac{2}{3}+\frac{3}{2}\right)$

$\frac{41}{12} - \left(\frac{4}{6} + \frac{9}{6}\right)$

$\frac{41}{12} - \frac{13}{6} = \frac{41}{12} - \frac{26}{12}$

$= \frac{15}{12} = \frac{5}{4} = \boxed{1\frac{1}{4}}$

10. $3\frac{5}{6}+\frac{1}{10}-\frac{3}{5}$

$\frac{23}{6} + \frac{1}{10} - \frac{3}{5}$

$\frac{115}{30} + \frac{3}{30} - \frac{18}{30} = \frac{100}{30}$

$= \frac{10}{3} = \boxed{3\frac{1}{3}}$

11. $11\frac{5}{6} - 1\frac{3}{8}$ (LCM: 24)

$\frac{71}{6} - \frac{11}{8} = \frac{284}{24} - \frac{33}{24}$

$= \frac{251}{24} = \boxed{10\ \frac{11}{24}}$

12. $1\frac{11}{15} + 6\frac{1}{6}$ (LCM: 30)

$\frac{26}{15} + \frac{37}{6} = \frac{52}{30} + \frac{185}{30}$

$= \frac{237}{30}$

$= \frac{79}{10} = \boxed{7\frac{9}{10}}$

13. Kisha ran $8\frac{7}{15}$ miles then walked $1\frac{7}{10}$ miles. Find the total distance she traveled.

$8\frac{7}{15} + 1\frac{7}{10}$

$\frac{127}{15} + \frac{17}{10} = \frac{254}{30} + \frac{51}{30}$

$= \frac{305}{30}$

$= \frac{61}{6} = \boxed{10\frac{1}{6}\text{ mi}}$

14. Tom has a rope that is $5\frac{3}{8}$ feet long. If he cuts $1\frac{2}{3}$ feet off, find the length of the rope remaining.

$5\frac{3}{8} - 1\frac{2}{3}$

$\frac{43}{8} - \frac{5}{3} = \frac{129}{24} - \frac{40}{24}$

$= \frac{89}{24} = \boxed{3\frac{17}{24}\text{ ft}}$

15. The clearance of a tunnel is $15\frac{1}{2}$ feet tall. If a truck is $13\frac{5}{12}$ feet tall, find the distance between the top of the truck and the top of the tunnel.

$15\frac{1}{2} - 13\frac{5}{12}$

$\frac{31}{2} - \frac{161}{12} = \frac{186}{12} - \frac{161}{12}$

$= \frac{25}{12} = \boxed{2\frac{1}{12}\text{ ft}}$

16. If $1\frac{1}{4}$ pounds of nuts is mixed with $\frac{2}{5}$ pounds of dried fruit to create trail mix, find the total weight of the mixture.

$1\frac{1}{4} + \frac{2}{5}$

$\frac{5}{4} + \frac{2}{5} = \frac{25}{20} + \frac{8}{20}$

$= \frac{33}{20} = \boxed{1\frac{13}{20}\text{ lb}}$

17. A bag contains $10\frac{1}{4}$ pounds of sand. If $3\frac{1}{9}$ pounds are poured out, find the weight of the sand remaining in the bag.

$10\frac{1}{4} - 3\frac{1}{9}$

$\frac{41}{4} - \frac{28}{9} = \frac{369}{36} - \frac{112}{36}$

$= \frac{257}{36} = \boxed{7\frac{5}{36}\text{ lb}}$

18. Mara made a cake. If she gave $\frac{4}{9}$ of the cake to her daughter and $\frac{1}{6}$ of the cake to her son, what fraction of the cake does she have left?

$1 - \left(\frac{4}{9} + \frac{1}{6}\right)$

$1 - \left(\frac{8}{18} + \frac{3}{18}\right)$

$\frac{18}{18} - \frac{11}{18} = \boxed{\frac{7}{18}}$

Name: _____ Math 6

Date: _____ Per: _____ Unit 2: Integer Operations

Quiz 3-1: Introduction to Fractions; Adding & Subtracting Fractions

1. Write as an improper fraction: $3\frac{4}{7}$

2. Write as a mixed number: $\frac{41}{8}$

$$8\overline{)41}\quad 5,\ -40,\ 1$$

Simplify. Write your answer as a mixed number when possible.

3. $\frac{21}{28}$

4. $\frac{30}{72}$

5. $\frac{60}{32} = \frac{15}{8}$

$$8\overline{)15}\quad 1,\ -8,\ 7$$

6. $\frac{84}{18} = \frac{14}{3}$

$$3\overline{)14}\quad 4,\ -12,\ 2$$

Determine whether the fractions are equivalent. (Answer yes or no)

7. $\frac{27}{48}, \frac{18}{28}$

$\frac{9}{16}, \frac{9}{14}$

8. $\frac{32}{24}, \frac{12}{9}$

$\frac{4}{3}, \frac{4}{3}$

Compare the fractions using a <, >, or = symbol.

9. $\frac{8}{15} \bigcirc \frac{7}{12}$

$\frac{32}{60} \quad \frac{35}{60}$

10. $\frac{12}{21} \bigcirc \frac{8}{14}$

$\frac{24}{42} \quad \frac{24}{42}$

11. $\frac{19}{4} \bigcirc \frac{25}{6}$

$\frac{57}{12} \quad \frac{50}{12}$

12. The table below gives the lengths of three songs, in minute. Using the letter names, order the lengths of the songs from least to greatest.

Song	A	B	C
Length (minutes)	$3\frac{11}{16}$	$3\frac{7}{8}$	$3\frac{3}{5}$

$\frac{59}{16} = \frac{295}{80} \quad \frac{31}{8} = \frac{310}{80} \quad \frac{18}{5} = \frac{288}{80}$

1. $\frac{25}{7}$
2. $5\frac{1}{8}$
3. $\frac{3}{4}$
4. $\frac{5}{12}$
5. $1\frac{7}{8}$
6. $4\frac{2}{3}$
7. No
8. Yes
12. C, A, B

Find each sum or difference. Write all answers in simplest form and as mixed numbers when possible.

13. $\frac{5}{28}+\frac{7}{28}$

$\frac{12}{28} = \frac{3}{7}$

14. $\frac{4}{5}-\frac{2}{15}$

$\frac{12}{15} - \frac{2}{15} = \frac{10}{15}$

$= \frac{2}{3}$

15. $2\frac{5}{6}-1\frac{1}{8}$

$\frac{17}{6} - \frac{9}{8}$

$\frac{68}{24} - \frac{27}{24} = \frac{41}{24}$

16. $3\frac{7}{10}+\frac{3}{4}$

$\frac{37}{10} + \frac{3}{4}$

$\frac{74}{20} + \frac{15}{20} = \frac{89}{20}$

17. $1\frac{4}{9}-1\frac{2}{15}$

$\frac{13}{9} - \frac{17}{15}$

$\frac{65}{45} - \frac{51}{45} = \frac{14}{45}$

18. $\frac{5}{21}+2\frac{1}{6}$

$\frac{5}{21} + \frac{13}{6}$

$\frac{10}{42} + \frac{91}{42} = \frac{101}{42}$

13. $\frac{3}{7}$

14. $\frac{2}{3}$

15. $1\frac{17}{24}$

16. $4\frac{9}{20}$

17. $\frac{14}{45}$

18. $2\frac{17}{42}$

19. $\frac{13}{16}$ in

20. $12\frac{13}{36}$ lb

19. Doug has a piece of tile that is $5\frac{9}{16}$ inches long. If he needs the piece to be $4\frac{3}{4}$ inches long to fit a certain area, how much should he cut off?

$5\frac{9}{16} - 4\frac{3}{4} = \frac{89}{16} - \frac{19}{4}$

$= \frac{89}{16} - \frac{76}{16} = \frac{13}{16}$ in

20. Trina's puppy Max was $8\frac{4}{9}$ pounds at his first vet appointment. If he gained $3\frac{11}{12}$ pounds by his second appointment, find Max's weight at his second vet appointment.

$8\frac{4}{9} + 3\frac{11}{12} = \frac{76}{9} + \frac{47}{12}$

$= \frac{304}{36} + \frac{141}{36} = \frac{445}{36} = 12\frac{13}{36}$ lb

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples

MULTIPLYING
fractions

Follow the steps below to multiply fractions.

❶	Write all mixed numbers as improper fractions.
❷	Simplify up and down and along the diagonals (if possible).
❸	Multiply the numerators to get the new numerator. Multiply the denominators to get the new denominator.
❹	Simplify, if necessary.

Find each product. Give all answers in simplest form.

1. $\frac{\cancel{13}}{8} \times \frac{5}{\cancel{6}_{2}}$

$\frac{1}{8} \times \frac{5}{2} = \boxed{\frac{5}{16}}$

2. $\frac{\cancel{12}^{1}}{5} \times \frac{7}{\cancel{8}_{4}}$

$\frac{1}{5} \times \frac{7}{4} = \boxed{\frac{7}{20}}$

3. $\frac{7}{16} \times 1\frac{1}{5}$

$\frac{7}{\cancel{16}_{8}} \times \frac{\cancel{6}^{3}}{5}$

$\frac{7}{8} \times \frac{3}{5} = \boxed{\frac{21}{40}}$

4. $1\frac{1}{3} \times 2\frac{5}{8}$

$\frac{\cancel{4}^{1}}{\cancel{3}_{1}} \times \frac{\cancel{21}^{7}}{\cancel{8}_{2}}$

$\frac{1}{1} \times \frac{7}{2} = \frac{7}{2}$

$= \boxed{3\frac{1}{2}}$

5. $2\frac{3}{8} \cdot 1\frac{5}{7}$

$\frac{\cancel{19}}{\cancel{8}_{2}} \cdot \frac{\cancel{12}^{3}}{7}$

$\frac{19}{2} \cdot \frac{3}{7} = \frac{57}{14}$

$= \boxed{4\frac{1}{14}}$

6. $1\frac{1}{4} \cdot 3\frac{7}{10}$

$\frac{\cancel{5}^{1}}{4} \cdot \frac{37}{\cancel{10}_{2}}$

$\frac{1}{4} \cdot \frac{37}{2} = \frac{37}{8}$

$= \boxed{4\frac{5}{8}}$

7. $2\frac{2}{9} \cdot 1\frac{5}{8}$

$5\frac{20}{9} \cdot \frac{13}{8_2}$

$\frac{5}{9} \cdot \frac{13}{2} = \frac{65}{18}$

$= \boxed{3\frac{11}{18}}$

8. $2\frac{1}{6} \cdot 5\frac{7}{9}$

$3\frac{13}{6} \cdot \frac{52^{26}}{9}$

$\frac{13}{3} \cdot \frac{26}{9} = \frac{338}{27}$

$= \boxed{12\frac{14}{27}}$

9. $5\frac{1}{10} \cdot 1\frac{7}{8}$

$\frac{51}{2\,10} \cdot \frac{15^{3}}{8}$

$\frac{51}{2} \cdot \frac{3}{8} = \frac{153}{16}$

$= \boxed{9\frac{9}{16}}$

10. $4\frac{9}{10} \cdot 5$

$\frac{49}{2\,10} \cdot \frac{5^{1}}{1}$

$\frac{49}{2} \cdot \frac{1}{1} = \frac{49}{2}$

$= \boxed{24\frac{1}{2}}$

11. $2\frac{5}{6} + 3\frac{3}{4} \cdot 1\frac{1}{5}$

$\frac{17}{6} + \frac{3\,15}{2\,4} \cdot \frac{6^{3}}{5_{1}}$

$\frac{17}{6} + \frac{9}{2} = \frac{17}{6} + \frac{27}{6}$

$= \frac{44}{6} = \frac{22}{3} = \boxed{7\frac{1}{3}}$

12. $1\frac{1}{6} \cdot \left(1\frac{1}{2} - \frac{3}{5}\right)$

$\frac{7}{6} \cdot \left(\frac{3}{2} - \frac{3}{5}\right)$

$\frac{7}{6} \cdot \left(\frac{15}{10} - \frac{6}{10}\right)$

$\frac{7}{2\,6} \cdot \frac{9^{3}}{10} = \frac{21}{20} = \boxed{1\frac{1}{20}}$

APPLICATIONS

13. Rachel has $2\frac{13}{16}$ pounds of flour. If she uses $\frac{2}{3}$ of the bag for a recipe, how many pounds of flour are left in the bag?

$2\frac{13}{16} \cdot \frac{2}{3}$

$15\,\frac{45}{8\,16} \cdot \frac{2^{1}}{3_{1}} = \frac{15}{8}$

$= 1\frac{7}{8}$

$2\frac{13}{16} - 1\frac{7}{8}$

$\frac{45}{16} - \frac{15}{8}$

$\frac{45}{16} - \frac{30}{16} = \boxed{\frac{16}{16}\text{ lb}}$

14. The furthest Jack has run was $3\frac{7}{15}$ miles. If he runs $1\frac{1}{4}$ times further than his longest run, how far did he run?

$3\frac{7}{15} \cdot 1\frac{1}{4}$

$13\,\frac{52}{3\,15} \cdot \frac{1^{5}}{4_{1}} = \frac{13}{3} = \boxed{4\frac{1}{3}\text{ miles}}$

Name: _____ **Unit 3:** Rational Numbers

Date: _____ Per: _____ **Homework 4:** Multiplying Fractions

Directions: Find each product. Write each answer in simplest form.

1. $\frac{18}{7} \cdot \frac{5}{16_2}$

$\frac{1}{7} \cdot \frac{5}{2} = \boxed{\frac{5}{14}}$

2. $2\frac{1}{2} \cdot \frac{7}{10}$

$\frac{1}{2}\frac{5}{2} \cdot \frac{7}{10_2} = \frac{7}{4}$

$= \boxed{1\frac{3}{4}}$

3. $\frac{2}{3} \cdot 5\frac{3}{4}$

$\frac{1}{3}\frac{2}{} \cdot \frac{23}{14_2} = \frac{23}{6}$

$= \boxed{3\frac{5}{6}}$

4. $1\frac{4}{9} \cdot \frac{3}{10}$

$\frac{13}{3\,9} \cdot \frac{3^1}{10} = \boxed{\frac{13}{30}}$

5. $4\frac{7}{9} \cdot 2\frac{2}{5}$

$\frac{43}{3\,9} \cdot \frac{12^4}{5} = \frac{172}{15}$

$= \boxed{11\frac{7}{15}}$

6. $\left(\frac{3}{4} + 1\frac{5}{12}\right) \cdot 1\frac{1}{2}$

$\left(\frac{3}{4} + \frac{17}{12}\right) \cdot \frac{3}{2}$

$\left(\frac{9}{12} + \frac{17}{12}\right) \cdot \frac{3}{2}$

$\frac{13}{4}\frac{26}{12} \cdot \frac{3^1}{2_1} = \frac{13}{4} = \boxed{3\frac{1}{4}}$

7. If you have $4\frac{1}{6}$ yards of fabric and cut $\frac{2}{5}$ of it off to make a quilt, how many yards of fabric will you have remaining?

$4\frac{1}{6} \cdot \frac{2}{5}$

$5\frac{28}{3\,16} \cdot \frac{2^1}{8_1}$

$= \frac{5}{3} = 1\frac{2}{3}$

$4\frac{1}{6} - 1\frac{2}{3}$

$\frac{25}{6} - \frac{5}{3}$

$\frac{25}{6} - \frac{10}{6}$

$= \frac{15}{6} = \frac{5}{2} = \boxed{2\frac{1}{2}\text{ yd}}$

8. One cup of sugar weighs, $6\frac{3}{10}$ ounces. Find the total weight of $4\frac{2}{3}$ cups of sugar.

$6\frac{3}{10} \cdot 4\frac{2}{3}$

$21\frac{63}{5\,10} \cdot \frac{14^7}{3_1} = \frac{147}{5}$

$= \boxed{29\frac{2}{5}\text{ ounces}}$

9. Kassidy's baby boy weighed $6\frac{1}{9}$ pounds at birth. Find his current weight if he now weighs $2\frac{2}{5}$ his birth weight.

$6\frac{1}{9} \cdot 2\frac{2}{5}$

$11\frac{55}{3\,9} \cdot \frac{12^4}{5_1} = \frac{44}{3}$

$= \boxed{14\frac{2}{3}\text{ pounds}}$

10. There was $4\frac{1}{8}$ gallons of water in a jug. If a soccer team drank $\frac{4}{9}$ of the water, how much water remains in the jug?

$4\frac{1}{8} \cdot \frac{4}{9}$

$11\frac{33}{2\,8} \cdot \frac{4^1}{9_3}$

$= \frac{11}{6} = 1\frac{5}{6}$

$4\frac{1}{8} - 1\frac{5}{6}$

$\frac{33}{8} - \frac{11}{6}$

$\frac{99}{24} - \frac{44}{24}$

$= \frac{55}{24} = \boxed{2\frac{7}{24}\text{ gallons}}$

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples

DIVIDING fractions

Follow the steps below to divide fractions.

1. Write all mixed numbers as improper fractions.
2. Change the division symbol to multiplication and FLIP the second fraction to its reciprocal (KISS!)
3. Multiply the numerators to get the new numerator.
   Multiply the denominators to get the new denominator.
4. Simplify (if needed).

Find each quotient. Give all answers in simplest form.

1. $\frac{1}{4} \div \frac{5}{6}$

$\frac{1}{2\cancel{4}} \cdot \frac{\cancel{6}3}{5} = \boxed{\frac{3}{10}}$

2. $\frac{4}{5} \div \frac{6}{7}$

$\frac{2\cancel{4}}{5} \cdot \frac{7}{\cancel{6}_3} = \boxed{\frac{14}{15}}$

3. $\frac{2}{3} \div 1\frac{2}{3}$

$\frac{2}{3} \div \frac{5}{3} = \frac{2}{1\cancel{3}} \cdot \frac{\cancel{3}^1}{5}$

$= \boxed{\frac{2}{5}}$

4. $1\frac{1}{4} \div 1\frac{1}{8}$

$\frac{5}{4} \div \frac{9}{8} = \frac{5}{1\cancel{4}} \cdot \frac{\cancel{8}^2}{9}$

$= \frac{10}{9} = \boxed{1\frac{1}{9}}$

5. $\frac{3}{4} \div 1\frac{4}{5}$

$\frac{3}{4} \div \frac{9}{5} = 1\cancel{3} \cdot \frac{5}{\cancel{9}3}$

$= \boxed{\frac{5}{12}}$

6. $1\frac{2}{9} \div \frac{5}{6}$

$\frac{11}{9} \div \frac{5}{6} = \frac{11}{3\cancel{9}} \cdot \frac{\cancel{6}^2}{5}$

$= \frac{22}{15} = \boxed{1\frac{7}{15}}$

7. $3 \div 2\frac{2}{5}$

$3 \div \frac{12}{5} = \frac{1\cancel{3}}{1} \cdot \frac{5}{\cancel{12}4}$

$= \frac{5}{4} = \boxed{1\frac{1}{4}}$

8. $5\frac{1}{3} \div 1\frac{1}{9}$

$\frac{16}{3} \div \frac{10}{9} = \frac{8\cancel{16}}{1\cancel{3}} \cdot \frac{\cancel{9}3}{\cancel{10}5}$

$= \frac{24}{5} = \boxed{4\frac{4}{5}}$

9. $2\frac{5}{8} \div 6\frac{3}{4}$

$\frac{21}{8} \div \frac{27}{4} = \frac{{}^{7}\cancel{21}}{\cancel{8}_{2}} \cdot \frac{\cancel{4}^{1}}{\cancel{27}_{9}}$

$= \boxed{\frac{7}{18}}$

10. $9\frac{1}{3} \div 4$

$\frac{28}{3} \div 4 = \frac{{}^{7}\cancel{28}}{3} \cdot \frac{1}{\cancel{4}_{1}}$

$= \frac{7}{3} = \boxed{2\frac{1}{3}}$

11. $3\frac{3}{7} \div \frac{10}{21}$

$\frac{24}{7} \div \frac{10}{21} = \frac{{}^{12}\cancel{24}}{\cancel{7}_{1}} \cdot \frac{\cancel{21}^{3}}{10_{5}}$

$= \frac{36}{5} = \boxed{7\frac{1}{5}}$

12. $\frac{3}{4} + \frac{9}{20} \div \frac{6}{25}$

$\frac{3}{4} + \frac{\cancel{9}^{3}}{\cancel{20}_{4}} \cdot \frac{\cancel{25}^{5}}{\cancel{6}_{2}}$

$\frac{3}{4} + \frac{15}{8} = \frac{6}{8} + \frac{15}{8}$

$= \frac{21}{8} = \boxed{2\frac{5}{8}}$

APPLICATIONS

13. A container of juice contains $10\frac{7}{8}$ cups. If the serving size listed on the package is $\frac{3}{4}$ cup, how many servings are there?

$10\frac{7}{8} \div \frac{3}{4} = \frac{87}{8} \div \frac{3}{4}$

$= \frac{{}^{29}\cancel{87}}{\cancel{8}_{2}} \cdot \frac{\cancel{4}^{1}}{\cancel{3}_{1}} = \frac{29}{2} = \boxed{14\frac{1}{2} \text{ servings}}$

14. How many bracelets can be made using $10\frac{5}{6}$ feet of string if each bracelet requires $\frac{5}{8}$ feet of string?

$10\frac{5}{6} \div \frac{5}{8} = \frac{65}{6} \div \frac{5}{8}$

$= \frac{{}^{13}\cancel{65}}{\cancel{6}_{3}} \cdot \frac{\cancel{8}^{4}}{\cancel{5}_{1}} = \frac{52}{3} = 17\frac{1}{3}$

17 bracelets

15. Mr. Kesler is filling test tubes with a solution to use with his science students. If he has 220 milliliters of solution and each test tube can hold a maximum of $9\frac{1}{3}$ milliliters, how many test tubes will he need?

$220 \div 9\frac{1}{3} = 220 \div \frac{28}{3}$

$= \frac{{}^{55}220}{1} \cdot \frac{3}{\underset{7}{\cancel{28}}} = \frac{165}{7} = 23\frac{4}{7}$

24 test tubes

Name: _____ **Unit 3:** Rational Numbers

Date: _____ **Per:** _____ **Homework 5:** Dividing Fractions

Directions: Find each product. Write each answer in simplest form.

1. $\frac{7}{9} \div \frac{5}{6}$

$\frac{7}{3\cancel{9}} \cdot \frac{\cancel{6}^{2}}{5} = \boxed{\frac{14}{15}}$

2. $1\frac{2}{3} \div \frac{8}{9}$

$\frac{5}{3} \div \frac{8}{9} = \frac{5}{\cancel{3}_{1}} \cdot \frac{9^{3}}{8}$

$= \frac{15}{8} = \boxed{1\frac{7}{8}}$

3. $\frac{5}{8} \div 2\frac{11}{12}$

$\frac{5}{8} \div \frac{35}{12} = \frac{\cancel{12}^{3}}{\cancel{8}_{2}} \cdot \frac{\cancel{12}^{3}}{\cancel{35}_{7}}$

$= \boxed{\frac{3}{14}}$

4. $8\frac{2}{5} \div 6$

$\frac{42}{5} \div 6 = \frac{\cancel{42}^{7}}{5} \cdot \frac{1}{\cancel{6}_{1}}$

$= \frac{7}{5} = \boxed{1\frac{2}{5}}$

5. $4\frac{2}{3} \div 1\frac{7}{9}$

$\frac{14}{3} \div \frac{16}{9} = \frac{\cancel{14}^{7}}{\cancel{3}_{1}} \cdot \frac{9^{3}}{\cancel{16}_{8}}$

$= \frac{21}{8} = \boxed{2\frac{5}{8}}$

6. $1\frac{1}{20} \div \left(\frac{5}{6} - \frac{2}{15}\right)$

$\frac{21}{20} \div \left(\frac{25}{30} - \frac{4}{30}\right)$

$\frac{21}{20} \div \frac{21}{30} = \frac{\cancel{21}^{1}}{\cancel{20}_{2}} \cdot \frac{\cancel{30}^{3}}{\cancel{21}_{1}}$

$= \frac{3}{2} = \boxed{1\frac{1}{2}}$

7. The bake shop had $3\frac{3}{8}$ pans of brownies left at the end of the day. If they evenly distribute the brownies to each of their six employees, what fraction of a pan will each employee receive?

$3\frac{3}{8} \div 6 = \frac{\cancel{27}^{9}}{8} \cdot \frac{1}{\cancel{6}_{2}}$

$= \boxed{\frac{9}{16} \text{ of a pan}}$

8. How many strips of ribbon can be cut from a roll of ribbon that is $4\frac{4}{9}$ meters long if each piece is $\frac{5}{12}$ meters long?

$4\frac{4}{9} \div \frac{5}{12} = \frac{\cancel{40}^{8}}{\cancel{9}_{3}} \cdot \frac{\cancel{12}^{4}}{\cancel{5}_{1}}$

$= \frac{32}{3} = 10\frac{2}{3}$

$\boxed{10 \text{ strips}}$

9. A block is $\frac{15}{16}$ inches tall. How many blocks are needed to create a tower that is at least 18 inches tall?

$18 \div \frac{15}{16} = \frac{\cancel{18}^{6}}{1} \cdot \frac{16}{\cancel{15}_{5}}$

$= \frac{96}{5} = 19\frac{1}{5}$

$\boxed{20 \text{ blocks}}$

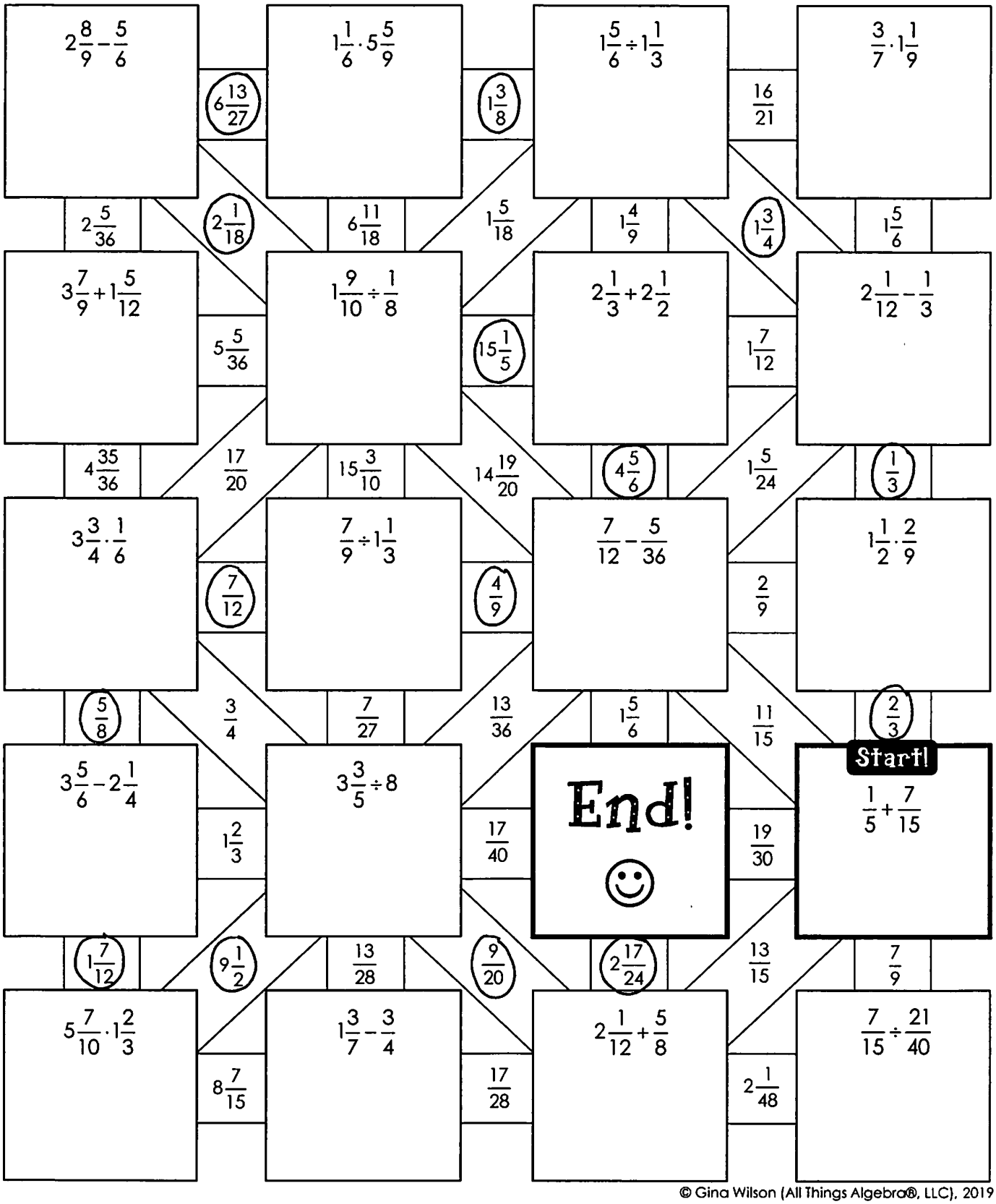
10. Scott has $18\frac{3}{4}$ gallons of gas in his tank. If he uses $\frac{3}{50}$ gallons of gas per mile he drives, how many miles can he drive before his tank is empty?

$18\frac{3}{4} \div \frac{3}{50} = \frac{\cancel{75}^{25}}{\cancel{4}_{2}} \cdot \frac{\cancel{50}^{25}}{\cancel{3}_{1}}$

$= \frac{625}{2} = \boxed{312\frac{1}{2} \text{ mi}}$

FRACTION OPERATIONS maze!

Directions: Evaluate each expression. Write all answers as mixed numbers in simplest form. Use your solutions to navigate through the maze. **Staple all work to this paper!**



Name: _____ **Unit 3:** Rational Numbers

Date: _____ **Per:** _____ **Homework 6:** All Fraction Operations

Directions: Evaluate each expression. Write all answers in simplest form as mixed numbers.

1. $\frac{13}{18} - \frac{5}{18} = \frac{8}{18}$

$= \boxed{\frac{4}{9}}$

2. $\frac{5}{12} + \frac{5}{6} = \frac{5}{12} + \frac{10}{12}$

$= \frac{15}{12}$

$= \frac{5}{4} = \boxed{1\frac{1}{4}}$

3. $1\frac{3}{5} + \frac{11}{15} = \frac{8}{5} + \frac{11}{15}$

$= \frac{24}{15} + \frac{11}{15}$

$= \frac{35}{15}$

$= \frac{7}{3} = \boxed{2\frac{1}{3}}$

4. $4\frac{1}{6} - 1\frac{3}{8} = \frac{25}{6} - \frac{11}{8}$

$= \frac{100}{24} - \frac{33}{24}$

$= \frac{67}{24} = \boxed{2\frac{19}{24}}$

5. $\frac{5}{6} + 5\frac{9}{10} = \frac{5}{6} + \frac{59}{10}$

$= \frac{25}{30} + \frac{177}{30}$

$= \frac{202}{30} = \frac{101}{15}$

$= \boxed{6\frac{11}{15}}$

6. $1\frac{5}{12} - \frac{7}{9} = \frac{17}{12} - \frac{7}{9}$

$= \frac{51}{36} - \frac{28}{36}$

$= \boxed{\frac{23}{36}}$

7. $\frac{\cancel{15}^{5}}{4} \cdot \frac{\cancel{9}^{3}}{\cancel{25}_{5}} = \frac{1}{4} \cdot \frac{3}{5}$

$= \boxed{\frac{3}{20}}$

8. $3\frac{4}{9} \cdot 1\frac{7}{8} = \frac{\cancel{31}^{}}{\cancel{3}} \cdot \frac{\cancel{155}^{}}{8}$

$= \frac{155}{24}$

$= \boxed{6\frac{11}{24}}$

9. $2\frac{2}{5} \cdot 3\frac{1}{8} = \frac{\cancel{3}^{1}\cancel{12}^{}}{\cancel{15}} \cdot \frac{\cancel{255}^{}}{\cancel{8}_{2}}$

$= \frac{15}{2}$

$= \boxed{7\frac{1}{2}}$

10. $\frac{15}{24} \div \frac{18}{32} = \frac{\cancel{5}^{}}{\cancel{3}} \cdot \frac{\cancel{32}^{4}}{\cancel{18}_{6}}$

$= \frac{20}{18}$

$= \frac{10}{9} = \boxed{1\frac{1}{9}}$

11. $2\frac{8}{9} \div 4 = \frac{\cancel{26}^{13}}{9} \cdot \frac{1}{\cancel{4}_{2}}$

$= \boxed{\frac{13}{18}}$

12. $4\frac{2}{3} \div 4\frac{1}{12} = \frac{14}{3} \div \frac{49}{12}$

$= \frac{\cancel{14}^{2}}{\cancel{3}_{1}} \cdot \frac{\cancel{12}^{4}}{\cancel{49}_{7}}$

$= \frac{8}{7} = \boxed{1\frac{1}{7}}$

13. $\frac{15}{16} - \frac{11}{12} + \frac{3}{16}$

$= \frac{45}{48} - \frac{44}{48} + \frac{3}{16}$

$= \frac{1}{48} + \frac{9}{48}$

$= \frac{10}{48} = \boxed{\frac{5}{24}}$

14. $1\frac{5}{9} \cdot \left(\frac{9}{14} + \frac{3}{4}\right)$

$= \frac{14}{9} \cdot \left(\frac{18}{28} + \frac{21}{28}\right)$

$= \frac{\cancel{14}^{1}}{\cancel{9}_{3}} \cdot \frac{\cancel{39}^{13}}{\cancel{28}_{2}}$

$= \frac{13}{6} = \boxed{2\frac{1}{6}}$

15. $\frac{1}{15} + \frac{6}{5} \div \frac{12}{7}$

$= \frac{1}{15} + \frac{\cancel{6}^{1}}{5} \cdot \frac{7}{\cancel{12}_{2}}$

$= \frac{1}{15} + \frac{7}{10}$

$= \frac{2}{30} + \frac{21}{30} = \boxed{\frac{23}{30}}$

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples	
ADDITION Applications	**1.** Elijah is a running back on a football team. In the last game, he played for $4\frac{3}{4}$ minutes in the first half and $7\frac{11}{20}$ minutes in the second half. Find his total playing time.	**2.** The table below gives the rainfall for the first three months of the year. Find the total rainfall for the two months with the greatest amount of rain.
	$4\frac{3}{4} + 7\frac{11}{20} = \frac{19}{4} + \frac{151}{20}$ $= \frac{95}{20} + \frac{151}{20}$ $= \frac{246}{20} = \frac{123}{10} = \boxed{12\frac{3}{10} \text{ min}}$	$2\frac{3}{4} + 2\frac{5}{9} = \frac{11}{4} + \frac{23}{9}$ $= \frac{99}{36} + \frac{92}{36}$ $= \frac{191}{36} = \boxed{5\frac{11}{36} \text{ in}}$
SUBTRACTION Applications	**3.** A piece of fabric is $4\frac{1}{6}$ yards long. If $2\frac{1}{4}$ yards are cut off, how many yards remain?	**4.** Luke cleared $2\frac{1}{8}$ acres from a $7\frac{5}{12}$ acre-lot to build a house. How much of the land is wooded?
	$4\frac{1}{6} - 2\frac{1}{4} = \frac{25}{6} - \frac{9}{4}$ $= \frac{50}{12} - \frac{27}{12}$ $= \frac{23}{12}$ $= \boxed{1\frac{11}{12} \text{ yd}}$	$7\frac{5}{12} - 2\frac{1}{8} = \frac{89}{12} - \frac{17}{8}$ $= \frac{178}{24} - \frac{51}{24}$ $= \frac{127}{24}$ $= \boxed{5\frac{7}{24} \text{ acres}}$
MULTIPLICATION Applications	**5.** Susan has two cats, Benson and Sadie. If Sadie weighs $11\frac{5}{9}$ pounds and Benson weighs $1\frac{5}{16}$ times the weight of Sadie, how much does Benson weight?	**6.** If bathtub contains $28\frac{3}{4}$ gallons of water. How much water is left in the tub if $\frac{2}{5}$ of the water is drained?
	$11\frac{5}{9} \cdot 1\frac{5}{16} = \frac{\cancel{104}^{13}}{\cancel{9}_{3}} \cdot \frac{\cancel{21}^{7}}{\cancel{16}_{2}}$ $= \frac{91}{6}$ $= \boxed{15\frac{1}{6} \text{ lbs}}$	$28\frac{3}{4} \cdot \frac{2}{5} = \frac{\cancel{115}^{23}}{\cancel{20}_{4}} \cdot \frac{\cancel{2}^{1}}{\cancel{5}_{1}} = \frac{23}{2} = 11\frac{1}{2}$ $28\frac{3}{4} - 11\frac{1}{2} = \frac{115}{4} - \frac{23}{2}$ $= \frac{115}{4} - \frac{46}{4}$ $= \frac{69}{4} = \boxed{17\frac{1}{4} \text{ gal}}$

DIVISION Applications

7. A bag contains $2\frac{5}{8}$ pounds of candy. If the candy is equally distributed to six children, how many pounds will each child get?

$2\frac{5}{8} \div 6 = \frac{21}{8} \cdot \frac{1}{6_2}$

$= \boxed{\frac{7}{16} \text{ lb}}$

8. An art teacher is pouring $74\frac{2}{3}$ ounces of paint into cups for her students to use. If each cup can hold a maximum of 4 ounces, how many cups does she need?

$74\frac{2}{3} \div 4 = \frac{224}{3} \cdot \frac{1}{4_1}$

$= \frac{56}{3}$

$= 18\frac{2}{3}$

19 Cups

MIXED Applications

9. Dana needs $1\frac{2}{3}$ yards of fabric to make a flag. If she has $31\frac{1}{4}$ yards, how many flags can she make?

$31\frac{1}{4} \div 1\frac{2}{3} = \frac{125}{4} \div \frac{5}{3}$

$= \frac{125}{4} \cdot \frac{3}{5_1}$

$= \frac{75}{4}$

$= 18\frac{3}{4}$

18 flags

10. A fish tank had $14\frac{5}{8}$ gallons of water. If water is drained from the tank so there is now $11\frac{13}{40}$ gallons, how much water was drained?

$14\frac{5}{8} - 11\frac{13}{40} = \frac{117}{8} - \frac{453}{40}$

$= \frac{585}{40} - \frac{453}{40}$

$= \frac{132}{40}$

$= \frac{33}{10} = \boxed{3\frac{3}{10} \text{ gal}}$

11. Evan ran to miles. He ran the first mile in $8\frac{1}{3}$ minutes and the second mile $1\frac{8}{15}$ minutes faster than the first mile. Find his total time.

$8\frac{1}{3} + \left(8\frac{1}{3} - 1\frac{8}{15}\right)$

$= \frac{25}{3} + \left(\frac{25}{3} - \frac{23}{15}\right)$

$= \frac{25}{3} + \left(\frac{125}{15} - \frac{23}{15}\right)$

$= \frac{125}{15} + \frac{102}{15} = \frac{227}{15} = \boxed{15\frac{2}{15} \text{ min}}$

12. Jake weighs $73\frac{7}{15}$ pounds. If Hunter weighs $\frac{5}{6}$ the weight of Jake, find the difference in their weights.

$73\frac{7}{15} \cdot \frac{5}{6} = \frac{1102}{15} \cdot \frac{5}{6_3}$

$= \frac{551}{9} = 61\frac{2}{9}$

$73\frac{7}{15} - 61\frac{2}{9} = \frac{1102}{15} - \frac{551}{9}$

$= \frac{3306}{45} - \frac{2755}{45}$

$= \frac{551}{45} = \boxed{12\frac{11}{45} \text{ lb}}$

FRACTION APPLICATIONS Relay Puzzle!

Directions: Follow the arrows to solve each problem. Use the answer from your previous problem to fill in the blank in the next problem. Work through the page until you reach the end. Show all work neatly on a separate sheet of paper.

START!

1 Max has a bag that contains $4\frac{5}{6}$ pounds of fertilizer. If he uses $1\frac{1}{2}$ pounds, how many pounds of fertilizer are left in the bag?

$3\frac{1}{3}$ lb

2 Nia's normal running route is $3\frac{1}{3}$ miles. If she ran this route $3\frac{3}{4}$ times this week, find the total number of miles she ran.

$12\frac{1}{2}$ mi

3 Trey lost $12\frac{1}{2}$ pounds in 8 weeks. If his weight loss remained constant each week, how many pounds did he lose each week?

$1\frac{9}{16}$ lb

4 Elena's math exam had two parts. It took her $\frac{5}{12}$ hours to complete the first part and $1\frac{9}{16}$ hours to complete the second part. How many hours did it take Elena to complete the exam?

$1\frac{47}{48}$ hr

5 A snowstorm dropped $1\frac{47}{48}$ feet of snow. If one-fifth of the snow has melted, how many feet of snow remains?

$1\frac{7}{12}$ ft

6 Karen has a piece of fabric that is $1\frac{7}{12}$ yards long. If she needs a piece that is $\frac{5}{6}$ yards long, many yards should she trim?

$\frac{3}{4}$ yd

7 How many pieces of wood can be cut from a board that is $10\frac{7}{8}$ long if each piece is $\frac{3}{4}$ feet long?

$14\frac{1}{2} \rightarrow 14$ pieces

8 Vance combined $2\frac{13}{15}$ pounds of peanuts with $1\frac{1}{3}$ pounds of raisins to create trail mix, then equally distributed the mix to 14 bags. How many pounds of trail mix are in each bag?

$\frac{3}{10}$ lb

9 When a tree was planted, it was 3 $\frac{3}{10}$ feet tall. It is now $1\frac{5}{9}$ times taller. How many feet has the tree grown since it was planted?

$1\frac{5}{6}$ ft

END!

Name: _____ **Unit 3:** Rational Numbers

Date: _____ **Per:** _____ **Homework 7:** Fraction Operations Applications

**** This is a 2-page document! ****

Directions: Read each problem carefully, then solve.

1. Greg dropped a bouncy ball. It reached $5\frac{1}{3}$ feet on the first bounce, then $\frac{9}{20}$ as high on the second bounce. How high did the ball reach on the second bounce?

$5\frac{1}{3} \cdot \frac{9}{20} = \frac{16}{3} \cdot \frac{9}{20} = \frac{4}{1} \cdot \frac{3}{5}$

$= \frac{12}{5} = 2\frac{2}{5}$ ft

2. Natalie and Caroline went fishing. Natalie caught a fish that weighed $8\frac{7}{10}$ pounds and Caroline caught a fish that weighed $12\frac{5}{6}$ pounds. How much heavier is Caroline's fish?

$12\frac{5}{6} - 8\frac{7}{10} = \frac{77}{6} - \frac{87}{10}$

$= \frac{385}{30} - \frac{261}{30}$

$= \frac{124}{30} = \frac{62}{15} = 4\frac{2}{15}$ lb

3. A cleaner is made by combining $2\frac{5}{12}$ cups of cleaning solution with $5\frac{3}{4}$ cups of water in a sprayer bottle. How many cups of cleaner are in the bottle?

$2\frac{5}{12} + 5\frac{3}{4} = \frac{29}{12} + \frac{23}{4}$

$= \frac{29}{12} + \frac{69}{12}$

$= \frac{98}{12} = \frac{49}{6} = 8\frac{1}{6}$ cups

4. Camille's baby Aiden was $20\frac{1}{4}$ inches long at birth. If he is now $22\frac{1}{2}$ inches long, how many times longer is he than his birth length?

$22\frac{1}{2} \div 20\frac{1}{4} = \frac{45}{2} \div \frac{81}{4}$

$= \frac{45}{2} \cdot \frac{4}{81}$

$= \frac{10}{9} = 1\frac{1}{9}$ times longer

5. Kayleigh ran $4\frac{8}{9}$ miles and walked $1\frac{5}{6}$ miles. Find the total distance she traveled.

$4\frac{8}{9} + 1\frac{5}{6} = \frac{44}{9} + \frac{11}{6}$

$= \frac{88}{18} + \frac{33}{18}$

$= \frac{121}{18} = 6\frac{13}{18}$ miles

6. An orchestra is playing a piece that is $6\frac{3}{8}$ minutes long. If they are $\frac{2}{3}$ through the piece, how many minutes are left?

$6\frac{3}{8} \cdot \frac{2}{3} = \frac{51}{8} \cdot \frac{2}{3}$

$= \frac{17}{4} = 4\frac{1}{4}$ min

$6\frac{3}{8} - 4\frac{1}{4} = \frac{51}{8} - \frac{17}{4}$

$= \frac{51}{8} - \frac{34}{8} = \frac{17}{8} = 2\frac{1}{8}$ min

7. Lisa has a piece of wood that is $12\frac{1}{5}$ feet long. If she is cutting the wood into pieces that are $1\frac{3}{5}$ feet long, what is the maximum number of pieces she can cut?

$12\frac{1}{5} \div 1\frac{3}{5} = \frac{61}{5} \div \frac{8}{5}$

$= \frac{61}{\cancel{5}_1} \cdot \frac{\cancel{5}^1}{8}$

$= \frac{61}{8} = 7\frac{5}{8}$

7 pieces

8. A bag contains $3\frac{7}{10}$ pounds of peanuts. If Joe eats $1\frac{11}{15}$ pounds, how many pounds of peanuts are left in the bag?

$3\frac{7}{10} - 1\frac{11}{15} = \frac{37}{10} - \frac{26}{15}$

$= \frac{111}{30} - \frac{52}{30}$

$= \frac{59}{30} = \boxed{1\frac{29}{30} \text{ lb}}$

9. Zac combined $5\frac{2}{3}$ cups of iced tea with $3\frac{1}{12}$ cups of lemonade. If he divides the drink evenly among 5 people, how many cups will each person get?

$5\frac{2}{3} + 3\frac{1}{12} = \frac{17}{3} + \frac{37}{12}$

$= \frac{68}{12} + \frac{37}{12} = \frac{105}{12} = \frac{35}{4} = 8\frac{3}{4}$

$8\frac{3}{4} \div 5 = \frac{35}{4} \div 5$

$= \frac{\cancel{35}^7}{4} \cdot \frac{1}{\cancel{5}_1} = \frac{7}{4} = \boxed{1\frac{3}{4} \text{ cups}}$

10. Mary has $7\frac{1}{12}$ square feet of wrapping paper. If she needs $1\frac{3}{5}$ more paper than what she has, how many more feet of paper does she need?

$7\frac{1}{12} \cdot 1\frac{3}{5} = \frac{\overset{17}{\cancel{85}}}{\underset{3}{\cancel{12}}} \cdot \frac{8^2}{\cancel{5}_1}$

$= \frac{34}{3} = \boxed{11\frac{1}{3} \text{ sq. ft.}}$

Write a word problem that can be solved using the given expression. Then solve.

11. $2\frac{5}{6} - \frac{7}{18}$

Ella's hair is $2\frac{5}{6}$ feet long. If she cuts of $\frac{7}{18}$ feet of hair to donate, how long is her hair?

Solve:

$2\frac{5}{6} - \frac{7}{18} = \frac{17}{6} - \frac{7}{18}$

$= \frac{51}{18} - \frac{7}{18}$

$= \frac{44}{18}$

$= \frac{22}{9}$

$= \boxed{2\frac{4}{9} \text{ ft}}$

12. $12\frac{3}{4} \cdot \frac{8}{15}$

Richard threw a football $12\frac{3}{4}$ meters. His brother Thomas threw the same football $\frac{8}{15}$ of the distance. How far did Thomas throw the ball?

Solve:

$12\frac{3}{4} \cdot \frac{8}{15} = \frac{\overset{17}{\cancel{51}}}{\underset{1}{\cancel{4}}} \cdot \frac{\overset{2}{\cancel{8}}}{\underset{5}{\cancel{15}}}$

$= \frac{17}{1} \cdot \frac{2}{5}$

$= \frac{34}{5}$

$= \boxed{6\frac{4}{5} \text{ meters}}$

Name: _____ **Math 6**

Date: _____ **Per:** _____ **Unit 3:** Rational Numbers

Quiz 3-2: All Fraction Operations & Applications

Directions: Find each sum, difference, product, or quotient. Give each answer as a mixed number in simplest form.

1. $\frac{2}{3}+\frac{7}{12}$

$\frac{8}{12}+\frac{7}{12}=\frac{15}{12}=\frac{5}{4}$

2. $2\frac{1}{6}-\frac{2}{9}$

$\frac{13}{6}-\frac{2}{9}=\frac{39}{18}-\frac{4}{18}$

$=\frac{35}{18}$

3. $1\frac{5}{6}+\frac{13}{24}$

$\frac{11}{6}+\frac{13}{24}=\frac{44}{24}+\frac{13}{24}$

$=\frac{57}{24}=\frac{19}{8}$

4. $3\frac{3}{10}-2\frac{7}{15}$

$\frac{33}{10}-\frac{37}{15}=\frac{99}{30}-\frac{74}{30}$

$=\frac{25}{30}$

5. $\frac{\cancel{8}^{1}}{\cancel{10}_{5}}\cdot\frac{\cancel{16}^{8}}{\cancel{27}_{3}}$

$\frac{1}{5}\cdot\frac{8}{3}=\frac{8}{15}$

6. $2\frac{5}{8}\cdot1\frac{7}{9}$

$\frac{\cancel{21}^{7}}{\cancel{8}_{1}}\cdot\frac{\cancel{16}^{2}}{\cancel{9}_{3}}=\frac{14}{3}$

7. $\frac{8}{15}\div\frac{12}{25}$

$\frac{\cancel{8}^{2}}{\cancel{15}_{3}}\cdot\frac{\cancel{25}^{5}}{\cancel{12}_{3}}=\frac{10}{9}$

8. $2\frac{7}{10}\div4\frac{1}{5}$

$\frac{27}{10}\div\frac{21}{5}=\frac{\cancel{27}^{9}}{\cancel{10}_{2}}\cdot\frac{\cancel{5}^{1}}{\cancel{21}_{7}}$

$=\frac{9}{14}$

9. $\frac{1}{16}+\frac{5}{8}\cdot1\frac{9}{10}$

$\frac{1}{16}+\frac{\cancel{5}^{1}}{\cancel{8}}\cdot\frac{19}{\cancel{10}_{2}}$

$\frac{1}{16}+\frac{19}{16}=\frac{20}{16}=\frac{5}{4}$

10. $1\frac{1}{6}-\frac{1}{5}+1\frac{1}{2}$

$\frac{7}{6}-\frac{1}{5}+\frac{3}{2}$

$\frac{35}{30}-\frac{6}{30}+\frac{3}{2}=\frac{29}{30}+\frac{45}{30}=\frac{74}{30}=\frac{37}{15}$

1.	$1\frac{1}{4}$
2.	$1\frac{17}{18}$
3.	$2\frac{3}{8}$
4.	$\frac{5}{6}$
5.	$\frac{8}{15}$
6.	$4\frac{2}{3}$
7.	$1\frac{1}{9}$
8.	$\frac{9}{14}$
9.	$1\frac{1}{4}$
10.	$2\frac{7}{15}$

Directions: Read each problem carefully and solve.

11.	$\frac{7}{15}$
12.	$47\frac{1}{2}$ lb
13.	18 laps
14.	$3\frac{14}{45}$ miles
15.	$6\frac{7}{20}$ gallons

11. Alyssa used a can of paint that was $\frac{5}{6}$ full to touch paint in her house. When she was done, the bucket was $\frac{11}{30}$ full. What fraction of the can did she use?

$\frac{5}{6} - \frac{11}{30} = \frac{25}{30} - \frac{11}{30} = \frac{14}{30} = \frac{7}{15}$

12. Each bag of sand weighs $7\frac{1}{8}$ pounds. Find the total weight of $6\frac{2}{3}$ bags.

$7\frac{1}{8} \cdot 6\frac{2}{3} = \frac{{}^{19}\cancel{57}}{\cancel{8}_{2}} \cdot \frac{\cancel{20}^{5}}{\cancel{3}_{1}}$

$= \frac{19}{2} \cdot \frac{5}{1} = \frac{95}{2} = 47\frac{1}{2}$

13. It takes Casey $2\frac{3}{16}$ minutes to complete one lap around the track. If he has 40 minutes, how many full laps can he complete?

$40 \div 2\frac{3}{16} = \frac{40}{1} \div \frac{35}{16}$

$= \frac{{}^{8}\cancel{40}}{1} \cdot \frac{16}{\cancel{35}_{7}} = \frac{128}{7} = 18\frac{2}{7}$

14. Lanson biked $1\frac{13}{15}$ miles to the library, then $1\frac{4}{9}$ miles to the park. How far did he bike altogether?

$1\frac{13}{15} + 1\frac{4}{9} = \frac{28}{15} + \frac{13}{9}$

$= \frac{84}{45} + \frac{65}{45} = \frac{149}{45} = 3\frac{14}{45}$

15. Violet had $14\frac{4}{5}$ gallons of gas in her car at the beginning of the week. At the end of the week, she had $6\frac{1}{3}$ gallons. If $\frac{3}{4}$ of the gallons used were from driving to and from work, how many gallons were used for work?

$14\frac{4}{5} - 6\frac{1}{3} = \frac{74}{5} - \frac{19}{3} = \frac{222}{15} - \frac{95}{15} = \frac{127}{15} = 8\frac{7}{15}$

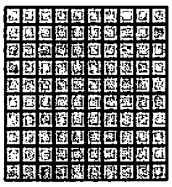
$8\frac{7}{15} \cdot \frac{3}{4} = \frac{127}{\cancel{15}_{5}} \cdot \frac{\cancel{3}^{1}}{4} = \frac{127}{20} = 6\frac{7}{20}$

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples

BASE-TEN SYSTEM

The base-ten system can be used to model a part of a whole.



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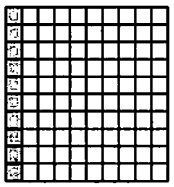
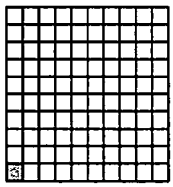


1 tenth



1 hundredth

DECIMALS & place value

A decimal is a number written using the base-ten place value system. The decimal separates the whole number part from the part that is less than one.

whole number				less than one				
hundreds	tens	ones	.	tenths	hundredths	thousandths	ten-thousandths	hundred-thousandths
		1	.	8	3	0	0	0

Standard Form: 1.83 **Expanded Form:** 1 + 0.8 + 0.03

Word Form: one and eighty-three hundredths

Write the number as a decimal in standard form.

1. sixteen and five tenths 16.5	**2.** seventy-eight hundredths 0.78
3. three and sixty-one hundredths 3.61	**4.** four and seven thousandths 4.007
5. eighty-nine and two tenths 89.2	**6.** twenty-five ten-thousandths 0.0025
7. one hundred forty-seven and six thousandths 147.006	**8.** seventy-three and nineteen hundredths 73.19

Write each decimal using words.

9. 5.9 Five and nine tenths

10. 0.04 Four hundredths

11. 17.28 Seventeen and twenty-eight hundredths

12. 3.061 Three and sixty-one thousandths

COMPARING & ordering

Place value can be used to compare decimals by lining up the numbers at the decimal. Insert zeros so that each number has the same number of digits following the decimal. Compare the numbers below using a <, >, or = symbol:

0.17 (>) 0.0932

Compare using a <, >, or = symbol.

13. 4.08 (<) 4.203

14. 0.702 (>) 0.2219

15. 1.159 (<) 1.18

16. 38.00952 (<) 38.0316

Order from least to greatest:

17. 0.15, 0.008, 0.701

0.008, 0.15, 0.701

18. 2.009, 2.48, 2.0302

2.009, 2.0302, 2.48

Order from greatest to least:

19. 7.042, 7.09, 7.0751

7.09, 7.0751, 7.042

20. 1.01, 1.101, 1.11

1.11, 1.101, 1.01

21. Blake ran the 50-yard dash in 10.012 seconds. If the school record was 10.009 seconds, did he beat the school record?

No; his time was higher than the record

ROUNDING decimals

To round a decimal to a given place value, look at the digit to the right of the place value. If this digit is less 5 or higher, we round up. If the digit is less than 5, we round down.

Round each number to the indicated place value.

22. 0.15; tenths

0.2

23. 1.33333; hundredths

1.33

24. 58.90261; thousandths

58.903

25. 9.04; tenths

9.0

26. 2.2958; hundredths

2.30

27. 16.28325 19; ten-thousandths

16.2833

28. The atomic weight of iron is 55.845. What is the atomic weight of iron to the nearest hundredth?

55.85

Name: _____ **Unit 3:** Rational Numbers

Date: _____ **Per:** _____ **Homework 8:** Decimals & Place Value

Directions: Write the number as a decimal in standard form.

1. fifty-nine thousandths

0.059

2. twelve and seven tenths

12.7

3. one hundred eight and four hundredths

108.04

4. thirty-one and sixty-five ten-thousandths

31.0065

5. nine and eight thousandths

9.008

6. one-thousand forty and three hundredths

1040.03

Directions: Write each decimal using words.

7. 4.28

four and twenty eight hundredths

8. 18.007

eighteen and seven thousandths

9. 92.1

ninety-two and one tenth

10. 156.0014

one hundred fifty six and fourteen ten-thousandths

Directions: Compare using a <, >, or = symbol.

11. 3.009 < 3.02

12. 1.198 < 1.390

13. 0.201 > 0.1084

14. Order from least to greatest:
16.04, 16.1, 16.0092

16.0092, 16.04, 16.1

15. Order from greatest to least:
0.0702, 0.00095, 0.1014

0.1014, 0.0702, 0.00095

16. If Jeremy has a batting average of 0.5014 and Alex has a batting average of 0.50098, who has the better average?

Jeremy

17. Mia's top three times for the1600-meter run are 6.07, 6.112, and 6.045 minutes. Which of these times is her fastest run?

6.045 min

Directions: Round each number to the indicated place value.

18. 2.0845; hundredths

2.08

19. 13.951; tenths

14.0

20. 14.021555; ten-thousandths

14.0216

21. 190.10162; thousandths

190.102

22. 340.172; hundredths

340.17

23. 8.099; tenths

8.1

24. Samantha spent $24.49 on lunch. To the nearest dollar, how much did she spent on lunch?

$24

25. The width of a board is 5.10529 inches. Round the width of the board to the nearest thousandth of an inch.

5.105in

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples

ADDING & SUBTRACTING decimals

To add or subtract decimals:

1. Line up the decimal points.
2. Insert zeros when necessary as place holders.
3. Add or subtract as you normally would. Bring down the decimal.

EXAMPLE 1 7.19 + 3.54

$$\begin{array}{r} {\scriptstyle 1} \\ 7.19 \\ +3.54 \\ \hline 10.73 \end{array}$$

10.73

EXAMPLE 2 2.372 + 16.8

$$\begin{array}{r} {\scriptstyle 1} \\ 2.372 \\ +16.800 \\ \hline 19.172 \end{array}$$

19.172

EXAMPLE 3 6.407 – 2.192

$$\begin{array}{r} {\scriptstyle 3\ 1} \\ 6.\cancel{4}07 \\ -2.192 \\ \hline 4.215 \end{array}$$

4.215

EXAMPLE 4 42.3 – 3.905

$$\begin{array}{r} {\scriptstyle 3\ 11\ 12\ 9\ 10} \\ \cancel{4}\cancel{2}.\cancel{3}\cancel{0}0 \\ -\ 3.905 \\ \hline 38.395 \end{array}$$

38.395

MORE EXAMPLES

Find each sum or difference.

1. 5.91 + 8.308

$$\begin{array}{r} {\scriptstyle 1} \\ 5.910 \\ +8.308 \\ \hline 14.218 \end{array}$$

14.218

2. 7.24 – 3.98

$$\begin{array}{r} {\scriptstyle 6\ 11\ 1} \\ \cancel{7}.\cancel{2}4 \\ -3.98 \\ \hline 3.26 \end{array}$$

3.26

3. 6.7 – 2.156

$$\begin{array}{r} {\scriptstyle 6\ 9\ 10} \\ 6.\cancel{7}00 \\ -2.156 \\ \hline 4.544 \end{array}$$

4.544

4. 7.981 + 8.5

$$\begin{array}{r} {\scriptstyle 1} \\ 7.981 \\ +8.500 \\ \hline 16.481 \end{array}$$

16.481

5. 21 − 16.83

$$\begin{array}{r} {\scriptstyle 1\ 10\ 9\ 10} \\ 2\not{1}.\not{0}\not{0} \\ -\ 16.83 \\ \hline 4.17 \end{array}$$

4.17

6. 47.63 + 23.496

$$\begin{array}{r} {\scriptstyle 1\ 1\ 1} \\ 47.630 \\ +\ 23.496 \\ \hline 71.126 \end{array}$$

71.126

7. 27.001 − 18.64

$$\begin{array}{r} {\scriptstyle 1\ 16\ 9\ 10} \\ 2\not{7}.\not{0}\not{0}1 \\ -\ 18.640 \\ \hline 8.361 \end{array}$$

8.361

8. 39.985 + 68.9301

$$\begin{array}{r} {\scriptstyle 1\ 1\ 1} \\ 39.9850 \\ +\ 68.9301 \\ \hline 108.9151 \end{array}$$

108.9151

9. 7.03 + 11 − 2.518

$$\begin{array}{r} 7.03 \\ +11.00 \\ \hline 18.03 \end{array} \qquad \begin{array}{r} {\scriptstyle 7\ 10\ 2\ 10} \\ 18.0\not{3}\not{0} \\ -\ 2.518 \\ \hline 15.512 \end{array}$$

15.512

10. 16.142 − 15.7 + 6.82

$$\begin{array}{r} {\scriptstyle 5\ 11} \\ 16.\not{1}42 \\ -15.700 \\ \hline 0.442 \end{array} \qquad \begin{array}{r} 0.442 \\ +6.820 \\ \hline 7.262 \end{array}$$

7.262

APPLICATIONS

11. If Song A is 4.02 minutes long and Song B is 3.8 minutes long, how many more minutes is Song A than Song B?

$$\begin{array}{r} {\scriptstyle 3\ 10} \\ 4.\not{0}2 \\ -3.80 \\ \hline .22 \end{array}$$

0.22 min

12. Casey had $560.94 in his checking account. If he deposits a check for $96.18, then spends $17.05 on lunch, find his new balance.

$$\begin{array}{r} {\scriptstyle 1\ 1\ 1} \\ 560.94 \\ +\ 96.18 \\ \hline 657.12 \end{array} \qquad \begin{array}{r} 657.12 \\ -\ 17.05 \\ \hline 640.07 \end{array}$$

$640.07

13. Earth is approximately 390.84 million miles closer to the Sun than Jupiter. If Jupiter is 483.8 million miles to the Sun, find the distance from Earth to the Sun.

$$\begin{array}{r} {\scriptstyle 3\ 18\ 2\ 17\ 10} \\ 4\not{8}3.\not{8}0 \\ -\ 390.84 \\ \hline 92.96 \end{array}$$

92.96 million miles

14. Jacksonville, Florida, is 554.58 miles from Charleston, West Virginia. Charleston is 217.8 miles from Cleveland, Ohio. If the three cities lie on the same longitude, find the distance from Jacksonville to Cleveland.

$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 554.58 \\ +217.80 \\ \hline 772.38 \end{array}$$

772.38 mi

Name: _____ **Unit 3:** Rational Numbers

Date: _____ **Per:** _____ **Homework 9:** Adding & Subtracting Decimals

Directions: Find each sum or difference.

1. 16.749 + 0.826

$$\begin{array}{r} 16.749 \\ +\ 0.826 \\ \hline 17.575 \end{array}$$

17.575

2. 23.4 − 18.9

$$\begin{array}{r} 23.4 \\ -\ 18.9 \\ \hline 4.5 \end{array}$$

4.5

3. 7.6 − 2.83

$$\begin{array}{r} 7.60 \\ -\ 2.83 \\ \hline 4.77 \end{array}$$

4.77

4. 6.25 + 11.952

$$\begin{array}{r} 6.250 \\ +11.952 \\ \hline 18.202 \end{array}$$

18.202

5. 15 − 9.48

$$\begin{array}{r} 15.00 \\ -\ 9.48 \\ \hline 5.52 \end{array}$$

5.52

6. 11.6 − 2.573 + 4.05

$$\begin{array}{r} 11.600 \\ -\ 2.573 \\ \hline 9.027 \end{array} \qquad \begin{array}{r} 9.027 \\ +4.050 \\ \hline 13.077 \end{array}$$

13.077

7. If helium has an atomic weight of 4.0026 and oxygen has an atomic weight of 15.999, find the difference in their atomic weights.

$$\begin{array}{r} 15.9990 \\ -\ 4.0026 \\ \hline 11.9964 \end{array}$$

11.9964

8. In the 100-meter freestyle, a swimmer swam the first half in 31.4 seconds and the second half in 32.68 seconds. If his previous record was 64.015 seconds, did he beat his record?

$$\begin{array}{r} 31.40 \\ +32.68 \\ \hline 64.08 \end{array}$$

No he did not beat the record.

9. Susan has a coffee shop gift card with a balance of $14.03. If she uses the card to purchase a coffee for $3.89, find the new balance on the card.

$$\begin{array}{r} 14.03 \\ -\ 3.89 \\ \hline 10.14 \end{array}$$

$10.14

10. Jeremy ran several laps around the track. He completed his last lap track in 1.89 minutes, which was 0.35 minutes less than his first lap. How many minutes did it take him to complete his first lap?

$$\begin{array}{r} 1.89 \\ +0.35 \\ \hline 2.24 \end{array}$$

2.24 min

11. A baby boy was born weighing 7.12 pounds. The next day, he had lost 0.8 pounds. He was weighed again the following day before going home with his mother. If he had gained 0.29 pounds, find his weight when he left the hospital.

$$\begin{array}{r} 7.12 \\ -0.80 \\ \hline 6.32 \end{array} \qquad \begin{array}{r} 6.32 \\ +0.29 \\ \hline 6.61 \end{array}$$

6.61 lb

12. Darryl set a timer for 35 minutes to work out. If he finishes his work out after 32.84 minutes, how much time is left the timer?

$$\begin{array}{r} 35.00 \\ -\ 32.84 \\ \hline 2.16 \end{array}$$

2.16 min

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples

MULTIPLYING decimals

To add or subtract decimals:

1. Line up the factors so that the last digit in each number align.
2. Multiply as you would with whole numbers.
3. Find the total number of digits past the decimal in each factor. The product will have this number of digits past the decimal.

EXAMPLE 1 4.68×8

$$\begin{array}{r} 4.68 \\ \times\ \ 8 \\ \hline 37.44 \end{array}$$

37.44

EXAMPLE 2 0.092(4)

$$\begin{array}{r} 0.092 \\ \times\ \ \ \ 4 \\ \hline .368 \end{array}$$

0.368

EXAMPLE 3 5.8×2.2

$$\begin{array}{r} 5.8 \\ \times 2.2 \\ \hline 116 \\ 1160 \\ \hline 12.76 \end{array}$$

12.76

EXAMPLE 4 1.3(12.452)

$$\begin{array}{r} 12.452 \\ \times\ \ \ 1.3 \\ \hline 37356 \\ 124520 \\ \hline 16.1876 \end{array}$$

16.1876

MORE EXAMPLES

Find each product.

1. 7.65×2

$$\begin{array}{r} 7.65 \\ \times\ \ 2 \\ \hline 15.30 \end{array}$$

15.3

2. 2.178(15)

$$\begin{array}{r} 2.178 \\ \times\ \ 15 \\ \hline 10890 \\ 21780 \\ \hline 32.670 \end{array}$$

32.67

3. 0.6(0.3)

$$\begin{array}{r} 0.6 \\ \times 0.3 \\ \hline .18 \end{array}$$

0.18

4. 1.02×0.8

$$\begin{array}{r} 1.02 \\ \times\ 0.8 \\ \hline .816 \end{array}$$

0.816

5. 0.005(0.04)

0.005
x 0.04
.00020

0.00020

6. 13.84×0.97

13.84
x 0.97
9688
124560
13.4248

13.4248

7. 8.1×3.72

3.72
x 8.1
372
29760
30.132

30.132

8. 1.9(12.408)

12.408
x 1.9
111672
124080
23.5752

23.5752

9. 0.0032(14.9)

0.0032
14.9
288
1280
3200
.04768

0.04768

10. 25.4×16.25

16.25
x 25.4
6500
81250
325000
412.750

412.75

APPLICATIONS

11. A plant is growing at about 0.65 inches each day. Find the change in the height of the plant in 12 days.

0.65
x 12
130
650
7.80

7.8in

12. Alana bought 2.45 pounds of oranges. If the oranges cost $1.39 per pound, find the total cost.

2.45
x1.39
2205
7350
24500
3.4055

$3.41

13. Greg's car gets approximately 18.9 miles to the gallon. If he is trading in his car for a new car that gets 1.25 times this, how many miles per gallon does the new car get?

18.9
x1.25
945
3780
18900
23.625

23.625 mi per gal

14. Pumpkins cost $0.79 per pound at the fall carnival. If Misha picks outs a pumpkin that weighs 21.82 pounds and pays with $20 bill, how much change will she receive?

21.82
x 0.79
19638
152740
17.2378 → $17.24

1 9 9 10
20.00
- 17.24
2.76

$2.76

Name: _____ **Unit 3:** Rational Numbers

Date: _____ **Per:** _____ **Homework 10:** Multiplying Decimals

Directions: Find each product.

1. 2.87×9

$$\begin{array}{r} 2.87 \\ \times \quad 9 \\ \hline 25.83 \end{array}$$

25.83

2. 0.62×0.45

$$\begin{array}{r} 0.62 \\ \times 0.45 \\ \hline 310 \\ 2480 \\ \hline .2790 \end{array}$$

0.279

3. 0.008×15.4

$$\begin{array}{r} 0.008 \\ \times \ 15.4 \\ \hline 32 \\ 400 \\ 800 \\ \hline .1232 \end{array}$$

0.1232

4. $5.17(21.2)$

$$\begin{array}{r} 5.17 \\ \times 21.2 \\ \hline 1034 \\ 5170 \\ 103400 \\ \hline 109.604 \end{array}$$

109.604

5. $6.8(0.0024)$

$$\begin{array}{r} 0.0024 \\ \times \quad 6.8 \\ \hline 192 \\ 1440 \\ \hline .01632 \end{array}$$

0.01632

6. $3.18(1.526)$

$$\begin{array}{r} 1.526 \\ \times \ 3.18 \\ \hline 12208 \\ 15260 \\ 458\,00 \\ \hline 4.85268 \end{array}$$

4.85268

7. A bottle of water contains 16.9 ounces. How many total ounces of water are there in a case with 24 bottles?

$$\begin{array}{r} 16.9 \\ \times \quad 24 \\ \hline 676 \\ 3380 \\ \hline 4056 \end{array}$$

405.6 oz

8. Natalya's credit card offers cash back rewards. If receives \$0.04 back for each dollar she spends, how much cash back will she receive if she charges \$861.95?

$$\begin{array}{r} 861.95 \\ \times \ 0.04 \\ \hline 34.4780 \end{array}$$

\$34.48

9. Malik bought 0.8 pounds of turkey and 1.45 pounds of ham from the deli. If turkey costs \$6.49 per pound and ham costs \$4.85 per pound, find the total cost.

$$\begin{array}{r} 6.49 \\ \times \ 0.8 \\ \hline 5.192 \end{array} \qquad \begin{array}{r} 4.85 \\ \times 1.45 \\ \hline 2425 \\ 19400 \\ 48500 \\ \hline 7.0325 \end{array} \qquad \begin{array}{r} 5.19 \\ + 7.03 \\ \hline 12.22 \end{array}$$

\$12.22

10. Abraham ran 3.18 miles on Monday. On Tuesday, he ran 1.6 times further than he did on Monday. How many more miles did he run on Tuesday than on Monday?

$$\begin{array}{r} 3.18 \\ \times \ 1.6 \\ \hline 1908 \\ 3180 \\ \hline 5.088 \end{array} \qquad \begin{array}{r} {\scriptstyle 4\ \ 10} \\ 5.088 \\ - 3.180 \\ \hline 1.908 \end{array}$$

1.908 mi

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples

DIVIDING by Whole Numbers

Recall: The first number, or top number, is called the **dividend** and goes in the box.

The second number, or bottom number, is called the **divisor** and goes outside the box.

To divide a number by a whole number:

1. Slide the decimal up.
2. Divide as if you are dividing whole numbers.
3. Insert zeros in the dividend when necessary.

EXAMPLE 1 $42.3 \div 9$

$$9\overline{)42.3}$$

4.7

-36

63

-63

0

4.7

EXAMPLE 2 $\frac{56.52}{6}$

$$6\overline{)56.52}$$

9.42

-54

25

-24

12

-12

0

9.42

EXAMPLE 3 $13.8 \div 4$

$$4\overline{)13.80}$$

3.45

-12

18

-16

20

-20

0

3.45

EXAMPLE 4 $\frac{0.72}{18}$

$$18\overline{)0.72}$$

$.04$

-0

72

-72

0

0.04

EXAMPLE 5 $43.26 \div 3$

$$3\overline{)43.26}$$

14.42

-3

13

-12

12

-12

06

-6

0

14.42

EXAMPLE 6 $\frac{1.52}{8}$

$$8\overline{)1.52}$$

$.19$

-8

72

-72

0

0.19

APPLICATIONS

1. If 50.4 ounces of lemonade is poured equally into 8 cups, how many ounces are in in cup?

$$8\overline{)50.4} = 6.3$$

-48

24

-24

0

6.3 oz

2. Eliza paid $16.80 for a 40-pound bag of dog food. Find the cost per pound.

$$40\overline{)16.80} = .42$$

-160

80

-80

0

$0.42/lb

3. Marcy pays per text message that she sends. If she sent 124 text messages last month and paid $16.12, how much does she pay per message?

$$124\overline{)16.12} = .13$$

-124

372

-372

0

$0.13/message

4. Julia and her two sisters went out to lunch. If the bill came to $47.22 and they shared the bill equally, how much will did each person pay?

$$3\overline{)47.22} = 15.74$$

-3

17

-15

22

-21

12

-12

0

$15.74

5. It took a runner 11.4 seconds to run 50 yards. How many seconds on average did it take the runner to run each yard? Round to the nearest hundredth of a second.

$$50\overline{)11.400} = .228$$

-100

140

-100

400

-400

0

0.228 sec

6. There are 11 servings in an 86.4-ounce bottle of orange juice. How many ounces of juice are there per serving? Round to the nearest hundredth of an ounce.

$$11\overline{)86.400} = 7.854$$

-77

94

-88

60

-55

50

-44

6

7.85 oz

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples

DIVIDING by decimals

To divide a number by a decimal:

1. Make the divisor a whole number by moving the decimal over.
2. Move the decimal over in the dividend the same number of places as you did with the divisor. Insert zeros if necessary.
3. Rewrite the problem and divide.

EXAMPLE 1 $27.2 \div 1.6 \rightarrow 272 \div 16$

$$\begin{array}{r} 17 \\ 16\overline{)272} \\ -16 \\ \hline 112 \\ -112 \\ \hline 0 \end{array}$$

17

EXAMPLE 2 $\frac{13.14}{1.8} \rightarrow \frac{131.4}{18}$

$$\begin{array}{r} 7.3 \\ 18\overline{)131.4} \\ -126 \\ \hline 54 \\ -54 \\ \hline 0 \end{array}$$

7.3

EXAMPLE 3 $\frac{6.12}{0.05} \rightarrow \frac{612}{5}$

$$\begin{array}{r} 122.4 \\ 5\overline{)612.0} \\ -5 \\ \hline 11 \\ -10 \\ \hline 12 \\ -10 \\ \hline 20 \\ -20 \\ \hline 0 \end{array}$$

122.4

EXAMPLE 4 $29.25 \div 2.4 \rightarrow 292.5 \div 24$

$$\begin{array}{r} 12.1875 \\ 24\overline{)292.5000} \\ -24 \\ \hline 52 \\ -48 \\ \hline 45 \\ -24 \\ \hline 210 \\ -192 \\ \hline 180 \\ -168 \\ \hline 120 \\ -120 \\ \hline 0 \end{array}$$

12.1875

EXAMPLE 5 $\frac{30}{0.08} \rightarrow \frac{3000}{8}$

$$\begin{array}{r} 375 \\ 8\overline{)3000} \\ -24 \\ \hline 60 \\ -56 \\ \hline 40 \\ -40 \\ \hline 0 \end{array}$$

375

EXAMPLE 6 $44.1 \div 2.45 \rightarrow 4410 \div 245$

$$\begin{array}{r} 18 \\ 245\overline{)4410} \\ -245 \\ \hline 1960 \\ -1960 \\ \hline 0 \end{array}$$

18

APPLICATIONS

1. A tower of blocks is 18.2 inches tall. If each block is 0.7 inches tall, how many blocks are there?

$\frac{18.2}{0.7} \rightarrow \frac{182}{7}$

$$\begin{array}{r} 26 \\ 7\overline{)182} \\ -14 \\ \hline 42 \\ -42 \\ \hline 0 \end{array}$$

26 blocks

2. Nick used 15.5 gallons of gas to drive 334.8 miles. On average, how many miles did he drive per gallon of gas?

$\frac{334.8}{15.5} \rightarrow \frac{3348}{155}$

$$\begin{array}{r} 21.6 \\ 155\overline{)3348.0} \\ -310 \\ \hline 248 \\ -155 \\ \hline 930 \\ -930 \\ \hline 0 \end{array}$$

21.6 mi

3. Jelly beans cost $6.45 per pound. If Marcus spent $7.74 on jelly jeans, how many pounds did he buy?

$\frac{7.74}{6.45} \rightarrow \frac{774}{645}$

$$\begin{array}{r} 1.2 \\ 645\overline{)774.0} \\ -645 \\ \hline 1290 \\ -1290 \\ \hline 0 \end{array}$$

1.2 lb

4. The toll to drive on a certain section of a highway is $0.80. If Nicole prepays $50, how many times can she drive on this section of the highway?

$\frac{50}{.80} \rightarrow \frac{500}{8}$

$$\begin{array}{r} 62.5 \\ 8\overline{)500.0} \\ -48 \\ \hline 20 \\ -16 \\ \hline 40 \\ -40 \\ \hline 0 \end{array}$$

62 times

5. Trina is cutting ribbon to make bows. If she has 7.5 yards of ribbon and she needs 0.4 yards for each bow, how many bows can she make?

$\frac{7.5}{0.4} \rightarrow \frac{75}{4}$

$$\begin{array}{r} 18.75 \\ 4\overline{)75.00} \\ -4 \\ \hline 35 \\ -32 \\ \hline 30 \\ -28 \\ \hline 20 \\ -20 \\ \hline 0 \end{array}$$

18 bows

6. If a quarter is 0.07 inches tall, what is the minimum number of quarters needed to make a stack that is at least 2 inches tall?

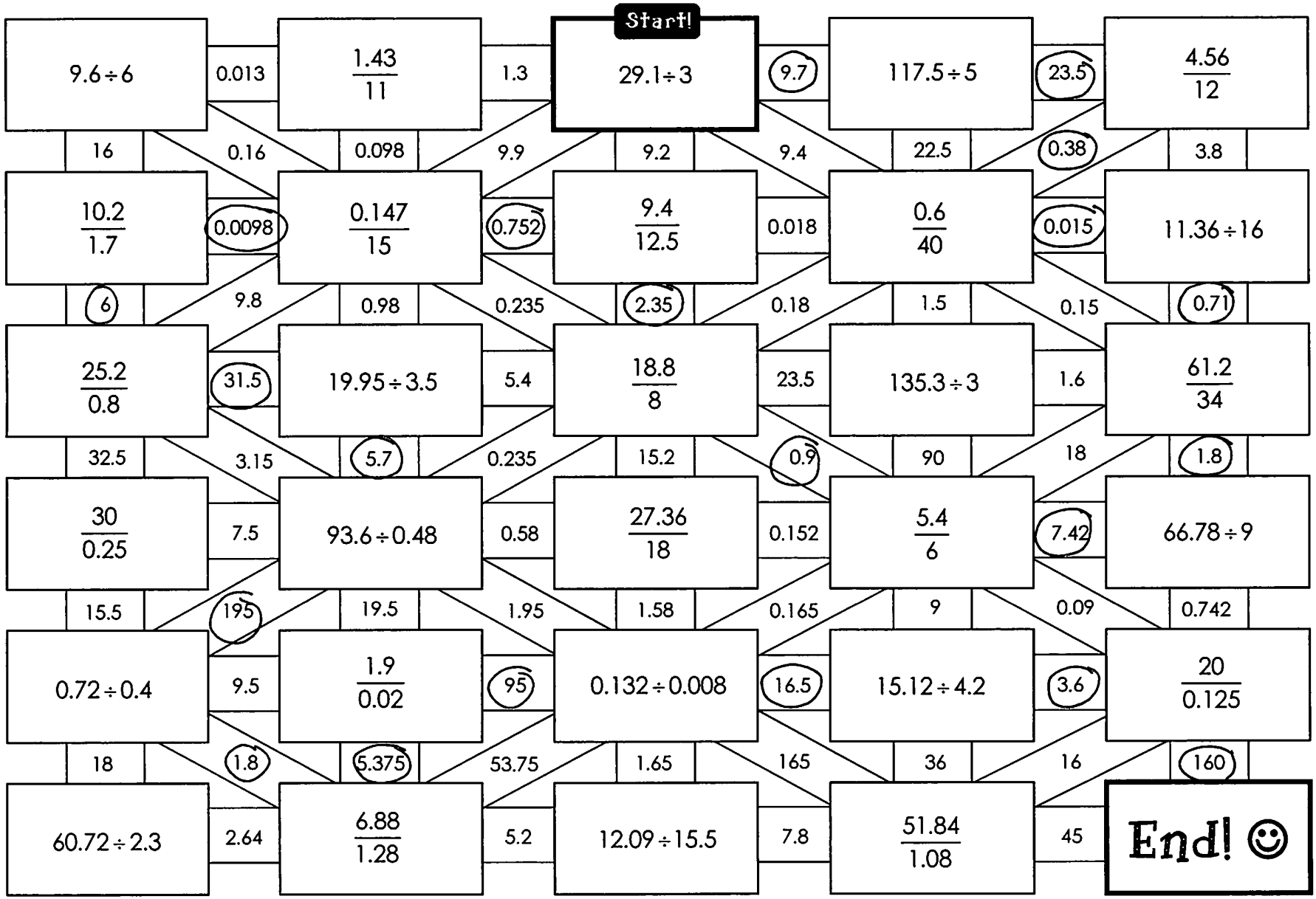
$\frac{2}{.07} \rightarrow \frac{200}{7}$

$$\begin{array}{r} 28.5 \\ 7\overline{)200.0} \\ -14 \\ \hline 60 \\ -56 \\ \hline 40 \\ -35 \\ \hline 5 \end{array}$$

29 quarters

Dividing Decimals Maze!

Directions: Find each quotient. Use your solutions to navigate through the maze.
SHOW ALL WORK on a separate sheet of paper and attach it to this page!



Name: _____ **Unit 3:** Rational Numbers

Date: _____ **Per:** _____ **Homework 11:** Dividing Decimals

**** This is a 2-page document! ****

Directions: Find each quotient.

1. $26.6 \div 7$

$$7\overline{)26.6}$$
$$-21$$
$$56$$
$$-56$$
$$0$$

3.8

2. $\frac{13.2}{8}$

$$8\overline{)13.20}$$
$$-8$$
$$52$$
$$-48$$
$$40$$
$$-40$$
$$0$$

1.65

3. $\frac{49.28}{4}$

$$4\overline{)49.28}$$
$$-4$$
$$09$$
$$-8$$
$$12$$
$$-12$$
$$08$$
$$-8$$
$$0$$

12.32

4. $0.12 \div 15$

$$15\overline{)0.120}$$
$$-0$$
$$12$$
$$-0$$
$$120$$
$$-120$$
$$0$$

0.008

5. $32.4 \div 4.5 \rightarrow 324 \div 45$

$$45\overline{)324.0}$$
$$-315$$
$$90$$
$$-90$$
$$0$$

7.2

6. $18.2 \div 1.75 \rightarrow 1820 \div 175$

$$175\overline{)1820.0}$$
$$-175$$
$$70$$
$$-0$$
$$700$$
$$-700$$
$$0$$

10.4

7. $\frac{25.13}{7.18} \rightarrow \frac{2513}{718}$

$$718\overline{)2513.0}$$
$$2154$$
$$3590$$
$$-3590$$
$$0$$

3.5

8. $5.166 \div 6.3 \rightarrow 51.66 \div 63$

$$63\overline{)51.66}$$
$$-0$$
$$516$$
$$-504$$
$$126$$
$$-126$$
$$0$$

0.82

9. $\frac{28.9}{4.25} \rightarrow \frac{2890}{425}$

$$425\overline{)2890.0}\quad 6.8$$
$$-2550$$
$$340$$
$$-3400$$
$$0$$

6.8

10. $\frac{81}{0.72} \rightarrow \frac{8100}{72}$

$$72\overline{)8100.0}\quad 112.5$$
$$-72$$
$$90$$
$$-72$$
$$180$$
$$-144$$
$$360$$
$$-360$$
$$0$$

112.5

11. Nine packs of crayons cost $21.51. Find the cost of each pack of crayons.

$\frac{21.51}{9}$

$$9\overline{)21.51}\quad 2.39$$
$$-18$$
$$35$$
$$-27$$
$$81$$
$$-81$$
$$0$$

$2.39

12. Sound travels approximately 12.3 miles per minute. How many minutes will it take someone to hear thunder is it strikes 85 miles away?

$\frac{85}{12.3} \rightarrow \frac{850}{123}$

$$123\overline{)850.0}\quad 6.9$$
$$-738$$
$$1120$$
$$-1107$$
$$13$$

7 minutes

13. It took Elijah 2.4 hours to run 13.8 miles. How many miles did he run each hour if he maintained a constant peed?

$\frac{13.8}{2.4} \rightarrow \frac{138}{24}$

$$24\overline{)138.00}\quad 5.75$$
$$-120$$
$$180$$
$$-168$$
$$120$$
$$-120$$
$$0$$

5.75 miles

14. At the end of a night, there was $48.60 in the tip jar at the coffee shop. If there are five employees and they split the tips equally, how much money will get employee get?

$\frac{48.60}{5}$

$$5\overline{)48.60}\quad 9.72$$
$$-45$$
$$36$$
$$-35$$
$$10$$
$$-10$$
$$0$$

$9.72

15. How many stamps can Michaela purchase with $30 if each stamp costs $0.28?

$\frac{30}{.28} \rightarrow \frac{3000}{28}$

$$28\overline{)3000.0}\quad 107.1$$
$$-28$$
$$20$$
$$-0$$
$$200$$
$$-196$$
$$40$$
$$-28$$
$$12$$

107 stamps

16. It cost $13.40 for 4.5 pounds of chicken. How much did it cost per pound? Round your answer to the nearest cent.

$\frac{13.40}{4.5} \rightarrow \frac{134.0}{45}$

$$45\overline{)134.000}\quad 2.977$$
$$-90$$
$$440$$
$$-405$$
$$350$$
$$-315$$
$$350$$
$$-315$$
$$35$$

$2.98

DECIMAL OPERATIONS

ADDING & SUBTRACTING DECIMALS

1. $13.96 + 4.025$

$$\begin{array}{r} 13.960 \\ +\ 4.025 \\ \hline 17.985 \end{array}$$

17.985

2. $120 - 34.82$

$$\begin{array}{r} {}^{1}\cancel{2}{}^{9}\cancel{0}{}^{10}.\cancel{0}0 \\ -\ 34.82 \\ \hline 85.18 \end{array}$$

85.18

3. $47.58 + 121.7$

$$\begin{array}{r} 47.58 \\ +121.70 \\ \hline 169.28 \end{array}$$

169.28

MULTIPLYING DECIMALS

4. 17.6×9.8

$$\begin{array}{r} 17.6 \\ \times\ 9.8 \\ \hline 1408 \\ 15840 \\ \hline 172.48 \end{array}$$

172.48

5. $18.23(0.64)$

$$\begin{array}{r} 18.23 \\ \times\ 0.64 \\ \hline 7292 \\ 109380 \\ \hline 11.6672 \end{array}$$

11.6672

6. 1.7×1.35

$$\begin{array}{r} 1.70 \\ \times 1.35 \\ \hline 850 \\ 5100 \\ 17000 \\ \hline 2.2950 \end{array}$$

2.295

DIVIDING DECIMALS

7. $142.2 \div 6$

$$\begin{array}{r} 23.7 \\ 6\overline{)142.2} \\ -12 \\ \hline 22 \\ -18 \\ \hline 42 \\ -42 \\ \hline 0 \end{array}$$

23.7

8. $\frac{10.18}{4}$

$$\begin{array}{r} 2.545 \\ 4\overline{)10.180} \\ -8 \\ \hline 21 \\ -20 \\ \hline 18 \\ -16 \\ \hline 20 \\ -20 \\ \hline 0 \end{array}$$

2.545

9. $\frac{27}{2.5}$

$$\begin{array}{r} 10.8 \\ 25\overline{)270.0} \\ -25 \\ \hline 20 \\ -0 \\ \hline 200 \\ -200 \\ \hline 0 \end{array}$$

10.8

10. $5.04 \div 0.28$

$$\begin{array}{r} 18 \\ 28\overline{)504} \\ -28 \\ \hline 224 \\ -224 \\ \hline 0 \end{array}$$

18

11. $\frac{18.72}{1.6}$

$$\begin{array}{r} 11.7 \\ 16\overline{)187.2} \\ -16 \\ \hline 27 \\ -16 \\ \hline 112 \\ -112 \\ \hline 0 \end{array}$$

11.7

12. $1.35 \div 0.003$

$$\begin{array}{r} 450 \\ 3\overline{)1350} \\ -12 \\ \hline 15 \\ -15 \\ \hline 00 \\ -0 \\ \hline 0 \end{array}$$

450

MIXED OPERATIONS

13. $18.1 - 16 \times 0.28$

$$\begin{array}{r} 16 \\ \times .28 \\ \hline 128 \\ 320 \\ \hline 4.48 \end{array} \qquad \begin{array}{r} {}^{7}\cancel{1}^{10}\,{}^{10} \\ 18.\cancel{1}\cancel{0} \\ -\ 4.48 \\ \hline 13.62 \end{array}$$

13.62

14. $5.65 \div 0.2 + 3.075$

$$\begin{array}{r} 28.25 \\ 2\overline{)56.50} \\ -4 \\ \hline 16 \\ -16 \\ \hline 05 \\ -4 \\ \hline 10 \\ -10 \\ \hline 0 \end{array} \qquad \begin{array}{r} 28.250 \\ +\ 3.075 \\ \hline 31.325 \end{array}$$

31.325

15. $17.2(3 - 2.58)$

$$\begin{array}{r} {}^{2}\cancel{3}^{9}\,{}^{10} \\ 3.\cancel{0}\cancel{0} \\ -2.58 \\ \hline .42 \end{array} \qquad \begin{array}{r} 17.2 \\ \times\ .42 \\ \hline 344 \\ 6880 \\ \hline 7.224 \end{array}$$

7.224

APPLICATIONS

16. During a hot dog eating contest, Alan ate 23.9 hot dogs in 5 minutes. How many hot dogs did he average each minute?

$$\begin{array}{r} 4.78 \\ 5\overline{)23.90} \\ -20 \\ \hline 39 \\ -35 \\ \hline 40 \\ -40 \\ \hline 0 \end{array}$$

4.78 hot dogs

17. The dinner bill for a large group was \$125.96. If the waiter adds a tip in the amount of \$25.19 to the bill, how much will the group pay in total?

$$\begin{array}{r} 125.96 \\ +\ 25.19 \\ \hline 151.15 \end{array}$$

\$151.15

18. There are 14.2 gallons of water in a fish tank. If 3.518 gallons are drained, how much water is left I the tank?

$$\begin{array}{r} {}^{3}\cancel{1}^{11}\,{}^{9}\,{}^{10} \\ 14.\cancel{2}\cancel{0}\cancel{0} \\ -\ 3.518 \\ \hline 10.682 \end{array}$$

10.682 gallons

19. A cab driver charges \$2.19 per mile driven. How much will the driver charge for an 8.3-mile ride? Round to the nearest cent.

$$\begin{array}{r} 2.19 \\ \times\ 8.3 \\ \hline 657 \\ 17520 \\ \hline 18.177 \end{array}$$

\$18.18

20. Sasha deposited \$75 in her daughter's school lunch account. If each lunch costs \$2.60, how many lunches can her daughter buy?

$$\begin{array}{r} 28.8 \\ 260\overline{)7500.0} \\ -520 \\ \hline 2300 \\ -2080 \\ \hline 2200 \\ -2080 \\ \hline 120 \end{array}$$

28 lunches

21. Each step on a stairway is 7.2 inches tall. If there are 18 steps, find the total height.

$$\begin{array}{r} 18 \\ \times 7.2 \\ \hline 36 \\ 1260 \\ \hline 129.6 \end{array}$$

129.6 in

APPLICATIONS WITH DECIMAL OPERATIONS *Relay Puzzle!*

Directions: Solve each problem. Use the arrows to guide you through the page. Use your answer from the previous problem to fill in the blank in the next problem. Work through the page until you reach the end.

START!

1 Alex watched two movies. Movie A was 81.95 minutes long and Movie B was 120.2 minutes long. How many minutes longer was Movie B and Movie A?

38.25 min

2 Chicken costs $8.50 per pound at the grocery store. If Chloe paid $ 38.25 for chicken, how many pounds did she buy?

4.5 lb

3 A vehicle is traveling at 12.2 meters per second. How many meters will the car travel in 4.5 seconds?

54.9 m

4 Amara has two dogs, Max and Sam. Max weighs 1.8 times more than Sam. If Max weighs 54.9 pounds, how much does Sam weigh?

30.5 lb

5 Lora caught two fish, one weighed 30.5 ounces and the other weighed 77.92 ounces. Find their combined weight.

108.42 oz.

6 Rick's credit card balance is $ 108.42. If he is credited $68.18 for a refund, then charges $27.86 for his lunch, find his new balance.

$68.10

7 Manny spent $ 68.10 filling up his gas tank. If it cost $2.50 per gallon of gas, how many gallons did he purchase?

27.24 gal

8 A letter weighs 27.24 ounces. How much will it cost to mail the letter if it costs $0.05 per ounce? Round to the nearest cent.

$1.36

9 Mr. Rizzo has $85 to buy notebooks for his science students. If they cost $ 1.36 each, how many can he purchase?

62 notebooks

10 There were 62 ounces of dish soap in a bottle. If 13.68 ounces are poured out, how much soap is left in the bottle?

48.32 oz

11 If 48.32 pounds of sand is poured into buckets, and each bucket can hold no more than 4 pounds, what is the minimum number of buckets needed?

13 buckets

12 Dane bought 13 pencils for $0.18 each and 6 binders for $2.65 each at the bookstore. How much did he spend in total?

$18.24

END!

Name: _____ **Unit 3:** Rational Numbers

Date: _____ **Per:** _____ **Homework 12:** All Decimal Operations

**** This is a 2-page document! ****

Directions: Find each sum, difference, product, or quotient.

1. 141.2 − 79.83

$$\begin{array}{r} {}^{3}1{}^{10}4{}^{11}1.{}^{1}2{}^{10}0 \\ -\ 79.83 \\ \hline 61.37 \end{array}$$

61.37

2. 38.125 + 17.9

$$\begin{array}{r} 38.125 \\ +17.900 \\ \hline 56.025 \end{array}$$

56.025

3. 136.842 + 91.07

$$\begin{array}{r} 136.842 \\ +\ 91.070 \\ \hline 227.912 \end{array}$$

227.912

4. 48 × 0.35

$$\begin{array}{r} 48 \\ \times .35 \\ \hline 240 \\ 1440 \\ \hline 16.80 \end{array}$$

16.8

5. 22.4(6.12)

$$\begin{array}{r} 22.4 \\ \times 6.12 \\ \hline 448 \\ 2240 \\ 134400 \\ \hline 137.088 \end{array}$$

137.088

6. 4.836(0.05)

$$\begin{array}{r} 4.836 \\ \times\ .05 \\ \hline .24180 \end{array}$$

0.2418

7. 11.68 ÷ 4

$$\begin{array}{r} 2.92 \\ 4\overline{)11.68} \\ -8 \\ \hline 36 \\ -36 \\ \hline 08 \\ -8 \\ \hline 0 \end{array}$$

2.92

8. $\frac{1.26}{12}$

$$\begin{array}{r} .105 \\ 12\overline{)1.260} \\ -12 \\ \hline 06 \\ -0 \\ \hline 60 \\ -60 \\ \hline 0 \end{array}$$

0.105

9. 9.8 ÷ 3.5

$$\begin{array}{r} 2.8 \\ 35\overline{)98.0} \\ -70 \\ \hline 280 \\ -280 \\ \hline 0 \end{array}$$

2.8

10. $\frac{0.87}{0.3}$

$$\begin{array}{r} 2.9 \\ 3\overline{)8.7} \\ -6 \\ \hline 27 \\ -27 \\ \hline 0 \end{array}$$

2.9

11. 5.8 ÷ 0.08

$$\begin{array}{r} 72.5 \\ 8\overline{)580.0} \\ -56 \\ \hline 20 \\ -16 \\ \hline 40 \\ -40 \\ \hline 0 \end{array}$$

72.5

12. $\frac{54}{12.5}$

$$\begin{array}{r} 4.32 \\ 125\overline{)540.00} \\ -500 \\ \hline 400 \\ -375 \\ \hline 250 \\ -250 \\ \hline 0 \end{array}$$

4.32

13. $44.1 \div 3 \times 0.75$

$$\begin{array}{r} 14.7 \\ 3\overline{)44.1} \\ -3 \\ \hline 14 \\ -12 \\ \hline 21 \\ -21 \\ \hline 0 \end{array} \qquad \begin{array}{r} 14.7 \\ \times 0.75 \\ \hline 735 \\ 10290 \\ \hline 11.025 \end{array}$$

11.025

14. $(0.98 + 15.1) \div 0.4$

$$\begin{array}{r} 0.98 \\ +15.10 \\ \hline 16.08 \end{array} \qquad \begin{array}{r} 40.2 \\ 4\overline{)160.8} \\ -16 \\ \hline 00 \\ -0 \\ \hline 08 \\ -8 \\ \hline 0 \end{array}$$

40.2

15. Eric earns $8.30 per hour at work. If he worked 16.85 hours this past week, how much will did earn? Round to the nearest cent.

$$\begin{array}{r} 16.85 \\ \times\ 8.30 \\ \hline 0000 \\ 5055\,0 \\ 134800\,0 \\ \hline 139.8550 \end{array}$$

$139.86

16. Jess bought 3.2 yards of fabric and paid $24.96. How much did she pay per yard?

$$\begin{array}{r} 7.8 \\ 32\overline{)249.6} \\ -224 \\ \hline 256 \\ -256 \\ \hline 0 \end{array}$$

$7.80

17. A gauge on Sam's car indicates that he has 178.8 miles left until his gas tank is empty. If he drives 60.25 miles to his visit his mother, then 83.9 miles to visit his friend, how many miles does he have left to empty?

$$\begin{array}{r} 178.8^{7}{}^{10} \\ -\ 60.25 \\ \hline 118.55 \end{array} \qquad \begin{array}{r} 118.^{7}5^{15}5 \\ -\ 83.90 \\ \hline 34.65 \end{array}$$

34.65 miles

18. Mia likes to practice her multiplication facts. If she can correctly answer one problem every 0.048 minutes, how many problems can she correctly answer in 3 minutes?

$$\begin{array}{r} 62.5 \\ 48\overline{)3000.0} \\ -288 \\ \hline 120 \\ -96 \\ \hline 240 \\ -240 \\ \hline 0 \end{array}$$

62

19. Six friends are splitting the cost to rent a boat. If the total cost is $194.20, how much will each person pay? Round to the nearest cent.

$$\begin{array}{r} 32.366 \\ 6\overline{)194.200} \\ -18 \\ \hline 14 \\ -12 \\ \hline 22 \\ -18 \\ \hline 40 \\ -36 \\ \hline 40 \\ -36 \\ \hline 4 \end{array}$$

$32.37

20. Vance ran 5.4 miles on Saturday. If he ran 1.2 times further on Sunday than he did on Saturday, find the total distance he ran on both days combined.

$$\begin{array}{r} 5.4 \\ \times 1.2 \\ \hline 108 \\ 540 \\ \hline 6.48 \end{array} \qquad \begin{array}{r} 6.48 \\ +5.4 \\ \hline 11.88 \end{array}$$

11.88 miles

Name: _____ **Math 6**

Date: _____ Per: _____ **Unit 3:** Rational Numbers

Quiz 3-3: All Decimal Operations & Applications

Evaluate each expression.

1. 4.82 + 16.917

4.820
+16.917
21.737

2. 150 − 138.79 + 21.6

149.10 10
150.00
−138.79
11.21

11.21
+21.60
32.81

3. 16.3 × 7.6

16.3
× 7.6
978
11410
123.88

4. 0.192 × 40

.192
× 40
000
7680
7.680

5. 62.14(0.85)

62.14
× 0.85
31070
497120
52.8190

6. 79.2 ÷ 3

26.4
3 | 79.2
−6
19
−18
12
−12
0

7. 20 ÷ 3.2

6.25
32 | 200.00
−192
80
−64
160
−160
0

8. $\frac{1.53}{0.09}$

17
9 | 163
−9
63
−63
0

9. $\frac{128.16}{1.2}$

106.8
12 | 1281.6
−12
08
−0
81
−72
96
−96
0

10. 11.8 + 20.68 ÷ 8

2.585
8 | 20.680
−16
46
−40
68
−64
40
−40
0

11.800
+ 2.585
14.385

1. 21.737
2. 32.81
3. 123.88
4. 7.68
5. 52.819
6. 26.4
7. 6.25
8. 17
9. 106.8
10. 14.385

Directions: Read each problem carefully and solve.

11. An elevator is currently 16.9 feet off the ground. If it ascends 32.35 feet, then descends 7.8 feet, how far off the ground is the elevator?

$$\begin{array}{r} 16.90 \\ +32.35 \\ \hline 49.25 \end{array} \qquad \begin{array}{r} {}^{8}\cancel{4}{}^{12}\cancel{9}.\cancel{2}5 \\ -\ 7.80 \\ \hline 41.45 \end{array}$$

12. Beth is buying 2.6 pounds of coffee beans. If the coffee costs \$6.79 per pound, how much will she pay? Round to the nearest cent.

$$\begin{array}{r} 6.79 \\ \times\ 2.6 \\ \hline 4074 \\ 13580 \\ \hline 17.654 \end{array}$$

13. A jug contains 74.1 ounces of fruit punch. If the punch is evenly distributed to six people, how many ounces will each person get?

$$\begin{array}{r} 12.35 \\ 6\overline{)74.10} \\ -6 \\ \hline 14 \\ -12 \\ \hline 21 \\ -18 \\ \hline 30 \\ -30 \\ \hline 0 \end{array}$$

14. Josh ran 84.6 miles in June. In July, he ran 0.55 times this distance due to an injury. How many more miles did he run in June than in July?

$$\begin{array}{r} 84.6 \\ \times 0.55 \\ \hline 4230 \\ 42300 \\ \hline 46.530 \end{array} \qquad \begin{array}{r} {}^{7}\cancel{8}{}^{14}\cancel{4}.{}^{5}\cancel{6}{}^{10}\cancel{0} \\ -\ 46.53 \\ \hline 38.07 \end{array}$$

15. Declan has 65.8 meters of wire. If he is cutting the wire into pieces that are 1.6 meters long, how many pieces can he cut?

$$\begin{array}{r} 41.1 \\ 16\overline{)658.0} \\ -64 \\ \hline 18 \\ -16 \\ \hline 20 \\ -16 \\ \hline 4 \end{array}$$

11.	41.45 feet
12.	\$17.65
13.	12.35 oz
14.	38.07 miles
15.	41 pieces

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples
RATIONAL NUMBER	Recall that any number that can written as a fraction is called a **rational number.** Therefore, any decimal that can written as a fraction is also a rational number.
Writing **DECIMALS** as **FRACTIONS**	**To write a decimal as a fraction:** ➢ **READ IT** (to determine place value) ➢ **WRITE IT** (using the place value as the denominator) ➢ **REDUCE IT** (simplify if possible)

Write each decimal as a fraction or mixed number in simplest form.

1. 0.8 $\frac{8}{10} = \boxed{\frac{4}{5}}$	**2.** 1.3 $\boxed{1\frac{3}{10}}$	**3.** 0.12 $\frac{12}{100} = \boxed{\frac{3}{25}}$
4. 9.75 $9\frac{75}{100} = \boxed{9\frac{3}{4}}$	**5.** 2.05 $2\frac{5}{100} = \boxed{2\frac{1}{20}}$	**6.** 0.375 $\frac{375}{1000} = \boxed{\frac{3}{8}}$
7. 16.14 $16\frac{14}{100} = 16\frac{7}{50}$	**8.** 4.33 $\boxed{4\frac{33}{100}}$	**9.** 5.225 $5\frac{225}{1000} = \boxed{5\frac{9}{40}}$

Writing **FRACTIONS** as **DECIMALS**

Case 1: THE DENOMINATOR IS 10, 100, 1000, ETC.
The decimal can be written as a fraction using the place value.

10. $\frac{7}{10}$ 0.7	**11.** $11\frac{39}{100}$ 11.39	**12.** $4\frac{9}{1000}$ 4.009

Case 2: ANY OTHER DENOMINATOR
Divide the numerator by the denominator.

13. $\frac{7}{8}$ .875 8|7.000 -64 60 -56 40 -40 0 $\boxed{0.875}$	**14.** $5\frac{3}{4}$ .75 4|3.00 -28 20 -20 0 $\boxed{5.75}$	**15.** $\frac{11}{5}$ 2.2 5|11.0 -10 10 -10 0 $\boxed{2.2}$

16. $\frac{11}{50}$

$50\overline{)11.00}$ → .22, −100, 100, −100, 0

0.22

17. $1\frac{7}{25}$

$25\overline{)7.00}$ → .28, −50, 200, −200, 0

0.28

18. $\frac{57}{16}$

$16\overline{)57.0000}$ → 3.5625, −48, 90, −80, 100, −96, 40, −32, 80, −80, 0

3.5625

Non-Terminating DECIMALS

- A decimal that ends is called a **terminating decimal.**
- Decimals that never end are called **non-terminating decimals.**
- Non-terminating decimals that have a pattern are called **repeating decimals.** These decimals can be written using bar notation:

0.333333... = $0.\overline{3}$ 1.727272... = $1.\overline{72}$ 16.2545454... = $16.25\overline{4}$

Write each fraction or mixed number as a decimal. Use bar notation for repeating decimals.

19. $\frac{2}{9}$

$9\overline{)2.00000}$ → .22222, −18, 20, −18, 20, −18, 20, −18, 20, −18, 2

$0.\overline{2}$

20. $3\frac{7}{11}$

$11\overline{)7.0000}$ → .6363, −66, 40, −33, 70, −66, 40, −33, 7

$3.\overline{63}$

21. $1\frac{5}{6}$

$6\overline{)5.0000}$ → .8333, −48, 20, −18, 20, −18, 20, −18, 2

$1.8\overline{3}$

22. $\frac{34}{15}$

$15\overline{)34.0000}$ → 2.2666, −30, 40, −30, 100, −90, 100, −90, 100, −90, 10, −90, 0

$2.2\overline{6}$

23. $6\frac{7}{18}$

$18\overline{)7.0000}$ → .3888, −54, 160, −144, 160, −144, 160, −144, 16

$6.3\overline{8}$

24. $\frac{53}{12}$

$12\overline{)53.0000}$ → 4.4166, −48, 50, −48, 20, −12, 80, −72, 80, −72, 8

$4.41\overline{6}$

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples

Comparing
FRACTIONS & DECIMALS

- One way to compare fractions and decimals is to convert them to decimals and compare using place value.
- **Example:** Elena and Rory each ordered a personal pizza. Elena ate $\frac{11}{15}$ of her pizza and Roy ate 0.78 of his pizza. Who ate a greater portion of their pizza?

$15\overline{)11.000}$ → -105, 50, -45, 50, -45, 5

Elena = $0.7\overline{3}$

Roy = 0.78

Roy ate more pizza.

Compare the numbers by placing a <, >, or = symbol in the circle.

1. $0.62 \bigcirc \frac{5}{8}$

0.625

$8\overline{)5.000}$ → -48, 20, -16, 40, -40, 0

2. $2.2 \bigcirc 2\frac{1}{6}$

$2.1\overline{6}$

$6\overline{)1.000}$ → -6, 40, -36, 40, -36, 0

3. $1\frac{7}{9} \bigcirc 1.7$

$1.\overline{7}$

$9\overline{)7.000}$ → -63, 70, -63, 70, -63, 7

4. $0.0\overline{68} \bigcirc \frac{5}{12}$

$.41\overline{6}$

$12\overline{)5.0000}$ → -48, 20, -12, 80, -72, 80, -72, 8

5. $7\frac{1}{5} \bigcirc 7.\overline{2}$

7.2

$5\overline{)1.0}$ → -10, 0

6. $\frac{17}{7} \bigcirc 2.\overline{45}$

$7\overline{)17.000}$ → -14, 30, -28, 20, -14, 60, -56, 4

Ordering

FRACTIONS & DECIMALS

7. During a snowstorm, Buffalo got $2\frac{7}{16}$ feet of snow and Rochester got 2.319 feet of snow. Which city got more snow?

$16\overline{)7.0000}$ = .4375

Buffalo

8. In the past year, Aidan grew 1.68 inches and Greg grew $1\frac{2}{3}$ inches. Who grew the most?

$3\overline{)2.000}$ = .666

Alden

9. Order form least to greatest: $\frac{4}{9}$, 0.4, $\frac{5}{14}$

$9\overline{)4.000}$ = .444

$14\overline{)5.000}$ = .357

$\frac{5}{14}, 0.4, \frac{4}{9}$

10. Order form least to greatest: 1.82, $\frac{20}{11}$, 1.095, $1\frac{4}{5}$

$11\overline{)20.000}$ = 1.818

$5\overline{)4.0}$ = .8

$1.095, 1\frac{4}{5}, \frac{20}{11}, 1.82$

11. Order form greatest to least: $\frac{8}{25}$, 0.095, $0.\overline{3}$, $\frac{3}{10}$

$25\overline{)8.00}$ = .32

$10\overline{)3.0}$ = .3

$0.\overline{3}, \frac{8}{25}, \frac{3}{10}, 0.095$

12. Jared, Kyra, and Rigel shot hoops for two rounds. The table to the left shows the fraction of the shots they made. Which student(s) shot a better second round than the first round?

	Round 1	Round 2
Jared	0.34	$\frac{1}{3}$
Kyra	0.375	$\frac{2}{5}$
Rigel	0.31	$\frac{4}{13}$

$3\overline{)1.00}$ = .33 → $0.\overline{3}$

$5\overline{)2.0}$ = .4

$13\overline{)4.000}$ = .307

Kyra

Name: _____ **Unit 3:** Rational Numbers

Date: _____ Per: _____ **Homework 13:** Fractions & Decimals

**** This is a 2-page document! ****

Directions: Write each decimal as a fraction or mixed number in simplest form.

1. 1.4

$1\frac{4}{10} = \boxed{1\frac{2}{5}}$

2. 3.25

$3\frac{25}{100} = \boxed{3\frac{1}{4}}$

3. 0.62

$\frac{62}{100} = \boxed{\frac{31}{50}}$

4. 7.44

$7\frac{44}{100} = \boxed{7\frac{11}{25}}$

5. 11.125

$11\frac{125}{1000} = \boxed{11\frac{1}{8}}$

6. 2.85

$2\frac{85}{100} = \boxed{2\frac{17}{20}}$

Directions: Write each fraction or mixed number as a decimal. Round to the nearest thousandth if necessary.

7. $\frac{3}{8}$

$8\overline{)3.000}$ → .375; 24; 60; 56; 40; 40; 0

$\boxed{0.375}$

8. $3\frac{7}{20}$

$20\overline{)7.00}$ → .35; 60; 100; 100; 0

$\boxed{3.35}$

9. $\frac{14}{5}$

$5\overline{)14.0}$ → 2.8; 10; 40; 40; 0

$\boxed{2.8}$

10. $\frac{8}{15}$

$15\overline{)8.000}$ → .533; 75; 50; 45; 50; 45; 5

$\boxed{0.5\overline{3}}$

11. $2\frac{4}{9}$

$9\overline{)4.000}$ → .444; 36; 40; 36; 40; 36; 4

$\boxed{2.\overline{4}}$

12. $1\frac{11}{12}$

$12\overline{)11.0000}$ → .9166; 108; 20; 12; 80; 72; 80; 72; 8

$1.91\overline{6}$

Compare the numbers by placing a <, >, or = symbol in the circle.

13. 0.34 (>) $\frac{1}{3}$

$3\overline{)1.00}$ → .33; 9; 10; 9; 1

14. $3\frac{10}{11}$ (>) 3.908

$11\overline{)10.0000}$ → .9090; 99; 10; 0; 100; 90; 10; 0; 10

15. $1\frac{3}{40}$ (<) 1.1

$40\overline{)3.000}$ → .075; 0; 300; 280; 200; 200; 0

16. $2.125 \; (>) \; \frac{19}{9}$

$$9\overline{)19.000} = 2.111\ldots$$
-18, 10, -9, 10, -9, 10, -9, 1

17. $4.\overline{4} \; (>) \; 4\frac{2}{5}$

$$5\overline{)2.0} = .4$$
-20, 0

18. $1.\overline{31} \; (<) \; \frac{21}{16}$

$$16\overline{)21.0000} = 1.3125$$
-16, 50, -48, 20, -16, 40, -32, 80, -80, 0

19. Carina and Rylee ran a mile in gym class. It took Carina 7.18 minutes Rylee $7\frac{4}{25}$ minutes to complete. Who ran the quickest?

$$25\overline{)4.00} = .16$$
-25, 150, -150, 0

Rylee = 7.16 min

Rylee

20. Max has two cats, Rex and Roman. If Rex weighs $11\frac{7}{18}$ pounds and Roman weighs 11.329 pounds, which cat weighs the most?

$$18\overline{)7.000} = .388\ldots$$
-54, 160, -144, 160, -144, 16

Rex = 11.388 lb

Rex

21. Order the following numbers from least to greatest: $1.095, 1.83, 1\frac{13}{15}, 1\frac{6}{7}$

$$15\overline{)13.000} = .866\ldots$$
-120, 100, -90, 100, -90, 10

$$7\overline{)6.0000} = .8571$$
-56, 40, -35, 50, -49, 10, -7, 3

$1.095, 1.83, 1\frac{6}{7}, 1\frac{13}{15}$

22. The table below shows the amount of rainfall, in inches, each month from March through June. Order the months from greatest to least in terms of the amount of rainfall.

Month	Rainfall
March	2.06
April	$2\frac{2}{11}$
May	$2\frac{1}{6}$
June	2.108

$2.\overline{18}$

$2.1\overline{6}$

$$11\overline{)2.0000} = .1818\ldots$$
-11, 90, -88, 20, -11, 90, -88, 2

$$6\overline{)1.000} = .166\ldots$$
-6, 40, -36, 40, -36, 4

April, May, June, March

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples

negative RATIONAL NUMBERS

Rational numbers can also be negative.
Write a rational number for each situation:

1. 25.2 feet below the water level	-25.2
2. a $9\frac{2}{3}$ foot gain in elevation	$9\frac{2}{3}$
3. a \$1.60 tax	1.60
4. $2\frac{5}{8}$ degrees below zero	$-2\frac{5}{8}$
5. a \$42.95 withdrawal	-42.95
6. using $14\frac{3}{5}$ ounces of shampoo	$-14\frac{3}{5}$
7. a \$18.71 deposit	18.71
8. beating a run record by $3\frac{11}{16}$ seconds	$-3\frac{11}{16}$

ABSOLUTE VALUE

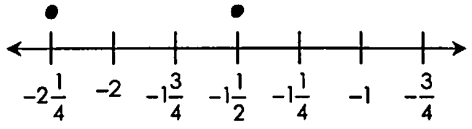
Recall that absolute value is a number's distance from zero.
We use bars around a number when finding its absolute value.
Find each absolute value:

9. $\left\|-\frac{2}{7}\right| \quad \frac{2}{7}$	**10.** $\left\|5\frac{1}{4}\right| \quad 5\frac{1}{4}$	**11.** $\left\|-2\frac{9}{20}\right| \quad 2\frac{9}{20}$
12. $\|4.95\| \quad 4.95$	**13.** $\|-0.703\| \quad .703$	**14.** $\|-8.2\| \quad 8.2$

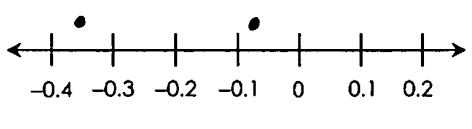
COMPARING negative Rational #'s

Use the number line to compare the values below.

15. $-2\frac{1}{4} \; (<) \; -1\frac{1}{2}$



16. $-0.08 \; (>) \; -0.35$



To compare negative rational numbers, write both numbers as:

- Like Fractions (fractions with the same denominator)

OR

- Decimals (to compare place value)

Think about where the numbers would fall on a number line.
The number closer to zero is the larger number.

Compare the numbers by placing a <, >, or = symbol in the circle.

17. $-\frac{4}{9}$ (<) $-\frac{1}{9}$

18. $-1\frac{5}{8}$ (>) $-1\frac{3}{4}$

$-1\frac{5}{8}$ $\quad$ $-1\frac{6}{8}$

19. -2.09 (>) -2.21

20. -15.8 (<) -14.01

21. -2.3 (>) $-2\frac{1}{3}$

$3\overline{)1.000}$ = .333
-9
10
-9
10
-9
1

22. $-\frac{7}{25}$ (=) -0.28

$25\overline{)7.00}$ = .28
-50
200
-200
0

23. -7.4 (<) $-7\frac{1}{4}$

$4\overline{)1.00}$ = .25
-8
20
-20
0

24. $-3\frac{5}{6}$ (<) -3.8

$6\overline{)5.000}$ = .833
-48
20
-18
20
-18
2

Order from least to greatest.

25. $-\frac{1}{6}, -\frac{1}{5}, -\frac{2}{15}$

$\frac{-5}{30}, \frac{-6}{30}, \frac{-4}{30}$

$-\frac{1}{5}, -\frac{1}{6}, -\frac{2}{15}$

26. $-4.2, -4\frac{1}{9}, -4.08$

$9\overline{)1.00}$ = .11
-9
10
-9
1

$-4.2, -4\frac{1}{9}, -4.08$

27. $-\frac{3}{7}, -0.5, -1\frac{1}{5}$

$7\overline{)3.000}$ = .428
-28
20
-14
60
-56
4

$5\overline{)1.0}$ = .2
-10
0

$-1\frac{1}{5}, -0.5, -\frac{3}{7}$

28. $-3\frac{2}{5}, -3\frac{3}{8}, -3.04$

$5\overline{)2.0}$ = .4
-20
0

$8\overline{)3.000}$ = .375
-24
60
-56
40
-40
0

$-3\frac{2}{5}, -3\frac{3}{8}, -3.04$

Name: _____ **Unit 3:** Rational Numbers

Date: _____ **Per:** _____ **Homework 14:** Negative Rational Numbers

Directions: Find each absolute value.

1. $|2.675|$ 2.675
2. $\left|-1\frac{3}{5}\right|$ $1\frac{3}{5}$
3. $\left|9\frac{1}{10}\right|$ $9\frac{1}{10}$
4. $|-5.04|$ 5.04

Directions: Compare the numbers by placing a <, >, or = symbol in the circle.

5. $-\frac{2}{15}$ (>) $-\frac{11}{15}$

6. $-2\frac{2}{3}$ (<) $-2\frac{5}{9}$

$-2\frac{6}{9}$

7. $-\frac{19}{20}$ (<) $-\frac{7}{8}$

$\frac{-38}{40}$ $\frac{-35}{40}$

8. -0.64 (>) -0.81

9. -7.17 (<) $-7.1\overline{6}$

10. -9.02 (>) -10.7

11. -4.35 (<) $-4\frac{1}{5}$

$5\overline{)1.0}$ → .2, -10, 0

12. -0.27 (>) $-\frac{9}{25}$

$25\overline{)9.00}$ → .36, -75, 150, -150, 0

13. $-3\frac{7}{8}$ (=) -3.875

$8\overline{)7.000}$ → .875, -64, 60, -56, 40, -40, 0

14. $-11\frac{1}{9}$ (>) -11.16

$9\overline{)1.000}$ → .111, -9, 10, -9, 10, -9, 1

15. -1.9 (<) $-1\frac{13}{15}$

$15\overline{)13.00}$ → .86, -120, 100, -90, 10

16. $-8\frac{1}{12}$ (<) -8.01

$12\overline{)1.000}$ → .083, -0, 100, -96, 40, -36, 4

Directions: Order from least to greatest.

17. $-\frac{7}{50}, -0.08, -\frac{1}{8}$

$50\overline{)7.00}$ → .14, -50, 200, -200, 0

$8\overline{)1.000}$ → .125, -8, 20, -16, 40, -40, 0

$-\frac{7}{50}, -\frac{1}{8}, -0.08$

18. $-2\frac{7}{11}, -2\frac{2}{3}, -2\frac{5}{8}$

$11\overline{)7.000}$ → .636, -66, 40, -33, 70, -66, 4

$3\overline{)2.000}$ → .666, -18, 20, -18, 20, -18, 2

$8\overline{)5.000}$ → .625, -48, 20, -16, 40, -40, 0

$-2\frac{2}{3}, -2\frac{7}{11}, -2\frac{5}{8}$

Unit 3 Test Study Guide
(Rational Numbers)

Name: _____

Date: _____ Per: _____

Topic 1: Fraction Operations

Directions: Evaluate. Write each answer as a fraction or mixed number in simplest form.

1. $1\frac{1}{6}+\frac{3}{4}$

$= \frac{7}{6}+\frac{3}{4}$

$= \frac{14}{12}+\frac{9}{12}$

$= \frac{23}{12}$

$= \boxed{1\frac{11}{12}}$

2. $6\frac{1}{10}-1\frac{7}{12}$

$= \frac{61}{10}-\frac{19}{12}$

$= \frac{366}{60}-\frac{95}{60}$

$= \frac{271}{60}$

$= \boxed{4\frac{31}{60}}$

3. $3\frac{8}{9}-1\frac{3}{10}+\frac{5}{6}$

$= \frac{35}{9}-\frac{13}{10}+\frac{5}{6}$

$= \frac{350}{90}-\frac{117}{90}+\frac{5}{6}$

$= \frac{233}{90}+\frac{75}{90}$

$= \frac{308}{90} = \frac{154}{46} = 3\frac{19}{45}$

4. $2\frac{5}{8}\cdot\frac{4}{15}$

$\frac{7}{2}\frac{21}{8}\cdot\frac{\cancel{4}^{1}}{\cancel{15}_{5}}$ $= \boxed{\frac{7}{10}}$

5. $3\frac{5}{9}\cdot1\frac{17}{28}$

$\frac{8}{1}\frac{32}{9}\cdot\frac{\cancel{455}^{5}}{\cancel{28}_{7}} = \frac{40}{7}$

$= \boxed{5\frac{5}{7}}$

6. $5\frac{3}{10}-2\frac{1}{4}\cdot2\frac{2}{15}$

$\frac{53}{10}-\frac{\cancel{3}^{1}}{1}\frac{\cancel{9}}{\cancel{4}}\cdot\frac{\cancel{32}^{8}}{\cancel{15}_{5}}$

$\frac{53}{10}-\frac{24}{5} = \frac{53}{10}-\frac{48}{10}$

$= \frac{5}{10} = \boxed{\frac{1}{2}}$

7. $\frac{14}{15}\div\frac{10}{21}$

$\frac{7}{5}\frac{\cancel{14}}{\cancel{18}}\cdot\frac{\cancel{21}^{7}}{\cancel{10}_{5}} = \frac{49}{25}$

$= \boxed{1\frac{24}{25}}$

8. $1\frac{13}{15}\div9\frac{3}{5}$

$\frac{28}{15}\div\frac{48}{5} = \frac{\cancel{28}^{7}}{3}\frac{}{\cancel{15}}\cdot\frac{\cancel{5}^{1}}{\cancel{48}_{12}}$

$= \boxed{\frac{7}{36}}$

9. $3\frac{3}{4}\div6+2\frac{7}{12}$

$\frac{5}{\cancel{18}}{\cancel{4}}\cdot\frac{1}{\cancel{6}_{2}}+\frac{31}{12}$

$\frac{5}{8}+\frac{31}{12} = \frac{15}{24}+\frac{62}{24}$

$= \frac{77}{24} = \boxed{3\frac{5}{24}}$

Topic 2: Decimal Operations

Directions: Evaluate.

10. 18.473+195.91

$$\begin{array}{r} 18.473 \\ +\ 195.910 \\ \hline 214383 \end{array}$$

$\boxed{214.383}$

11. 46.2−9.048

$$\begin{array}{r} {}^{3}\cancel{4}{}^{16}\cancel{6}{}^{1}.{}^{9}2{}^{10}\cancel{0} \\ -\ 9.048 \\ \hline 37.152 \end{array}$$

$\boxed{37.152}$

12. 116(2.3)

$$\begin{array}{r} 116 \\ \times\ 2.3 \\ \hline 348 \\ 2320 \\ \hline 266.8 \end{array}$$

$\boxed{266.8}$

13. 7.4(6.28)

$$\begin{array}{r} 7.40 \\ \times 6.28 \\ \hline 5920 \\ 14800 \\ 444000 \\ \hline 46.4720 \end{array}$$

46.472

14. 8.75(0.09)

$$\begin{array}{r} 8.75 \\ \times \ .09 \\ \hline .7875 \end{array}$$

0.7875

15. 51.3 − 4.7(9.8)

$$\begin{array}{r} 4.7 \\ \times 9.8 \\ \hline 376 \\ 4230 \\ \hline 46.06 \end{array}$$

$$\begin{array}{r} {}^{2}{}^{10} \\ 51.30 \\ -\ 46.06 \\ \hline 5.24 \end{array}$$

5.24

16. 19.6 ÷ 7

$$\begin{array}{r} 2.8 \\ 7\overline{)19.6} \\ -14 \\ \hline 56 \\ -56 \\ \hline 0 \end{array}$$

2.8

17. $\frac{90.72}{18}$

$$\begin{array}{r} 5.04 \\ 18\overline{)90.72} \\ -90 \\ \hline 07 \\ -0 \\ \hline 72 \\ -72 \\ \hline 0 \end{array}$$

5.04

18. $\frac{28.2}{0.6}$

$$\begin{array}{r} 47 \\ 6\overline{)282} \\ -24 \\ \hline 42 \\ -42 \\ \hline 0 \end{array}$$

47

19. 5.11 ÷ 3.65

$$\begin{array}{r} 1.4 \\ 365\overline{)511.0} \\ -365 \\ \hline 1460 \\ -1460 \\ \hline 0 \end{array}$$

1.4

20. $\frac{12.25}{2.5}$

$$\begin{array}{r} 4.9 \\ 25\overline{)122.5} \\ -100 \\ \hline 225 \\ -225 \\ \hline 0 \end{array}$$

4.9

21. 2.12 ÷ 0.008 − 72.87

$$\begin{array}{r} 265 \\ 8\overline{)2120.} \\ -16 \\ \hline 52 \\ -48 \\ \hline 40 \\ -40 \\ \hline 0 \end{array}$$

$$\begin{array}{r} {}^{1}{}^{1}{}^{6}{}^{4}{}^{9}{}^{10} \\ 265.00 \\ -\ 72.87 \\ \hline 192.13 \end{array}$$

192.13

Topic 3: Applications with Fraction & Decimal Operations

Directions: Solve. Give each answer as a fraction or mixed number in simplest form.

22. Naomi needs pieces of yarn for a craft project. If she has $2\frac{5}{9}$ yards of string and each piece needs to be $\frac{2}{15}$ yards long, how many pieces can she cut?

$$\frac{23}{9} \div \frac{2}{15} = \frac{23}{\cancel{9}_{3}} \cdot \frac{\cancel{15}^{5}}{2}$$

$$= \frac{115}{6} = 19.1$$

19 pieces

23. Jill ran $12\frac{1}{12}$ miles on Friday and $4\frac{5}{9}$ miles on Sunday. How many more miles did she run on Friday than on Saturday?

$$\frac{145}{12} - \frac{41}{9} = \frac{435}{36} - \frac{164}{36}$$

$$= \frac{271}{36}$$

$$= 7\frac{19}{36} \text{ mi}$$

24. Lia is snorkeling with her brother Tom. If Lia is $5\frac{7}{10}$ feet below the surface of the water and Tom is $1\frac{1}{3}$ times further below the surface than Lia, how many feet below the water is Tom?

$5\frac{7}{10} \cdot \frac{4}{3} = \frac{38}{5}$

$= \boxed{7\frac{3}{5} \text{ ft}}$

25. Colin started a new book on Monday. If he read $\frac{1}{8}$ of the book on Monday and $\frac{7}{20}$ of the book on Tuesday, what fraction of the book does he have left?

$\frac{1}{8} + \frac{7}{20}$

$= \frac{5}{40} + \frac{14}{40}$

$= \frac{19}{40}$

$1 - \frac{19}{40}$

$= \frac{40}{40} - \frac{19}{40}$

$= \boxed{\frac{21}{40}}$

26. Erin combined $1\frac{17}{18}$ pounds of peanuts with $1\frac{5}{6}$ pounds of M&M's to create trail mix, then evenly distributed the mix into 8 bags. How many pounds trail mix are in each bag?

$\frac{35}{18} + \frac{11}{6}$

$= \frac{35}{18} + \frac{33}{18}$

$= \frac{68}{18} = \frac{34}{9}$

$\frac{34}{9} \div 8$

$= \frac{17\cancel{34}}{9} \cdot \frac{1}{\cancel{8}_4}$

$= \boxed{\frac{17}{36} \text{ lb}}$

27. Tyler has $\frac{9}{16}$ pounds of raisins. If he uses $\frac{2}{3}$ of the raisins to make raisin bread, how many pounds of raisins does he have left?

$\frac{\cancel{3}9}{8\ \cancel{16}} \cdot \frac{2\cancel{1}}{\cancel{3}_1}$

$= \frac{3}{8}$

$\frac{9}{16} - \frac{3}{8}$

$= \frac{9}{16} - \frac{6}{16}$

$= \boxed{\frac{3}{16} \text{ lb}}$

Directions: Solve.

28. On a certain day, the high temperature was 91.4 degrees and the low temperature was 75.92 degrees. Find the range in the temperature that day.

$\overset{8}{9}\overset{10}{1}.\overset{13}{4}\overset{10}{0}$

$-\ 75.92$

15.48

$\boxed{15.48 \text{ degrees}}$

29. Tyrone swam 4 laps of the pool in 6.2 minutes. How many minutes did it take him to swim each lap?

$4\overline{)6.20}$ $= 1.55$

-4

22

-20

20

-20

0

$\boxed{1.55 \text{ min}}$

30. Natalie burns 8.7 calories per minute running. If she runs for 45.2 minutes, how many calories will she burn?

45.2×8.7

3164

36160

393.24

$\boxed{393.24 \text{ cal}}$

31. Frank has a gas tank with 5 gallons of gas. If he uses 0.36 gallons each time he cuts the grass, how many times can he cut the grass?

$36\overline{)500.00}$ $= 13.88$

-36

140

-108

320

-288

320

-288

32

$\boxed{13 \text{ times}}$

32. What is the minimum number of rows of bricks needed to build a wall that is at least 4 feet tall if each brick is 2.25 inches tall? ↓ 48 in

$$225\overline{)4800.00}\quad 21.33$$
-450
300
-225
750
-675
750
-675
75

22 bricks

33. The salad bar at the grocery store costs \$5.95 per pound. If Gary makes a salad that weighs 1.3 pounds and pays with a \$20 bill, how much change will he receive? Round to the nearest cent.

5.95×1.3
1785
5950
7.735

$20.00 - 7.74$
12.26

\$12.26

Topic 4: Fractions vs. Decimals

Directions: Write each decimal as a fraction or mixed number in simplest form.

34. 1.2

$1\frac{2}{10} = 1\frac{1}{5}$

35. 0.84

$\frac{84}{100} = \frac{21}{25}$

36. 9.175

$9\frac{175}{1000} = 9\frac{7}{40}$

Directions: Write each fraction or mixed number as a decimal.

37. $2\frac{5}{8}$

$8\overline{)5.000}\quad .625$
-48
20
-16
40
-40
0

5.625

38. $\frac{7}{60}$

$60\overline{)7.0000}\quad .1166$
-60
100
-60
400
-360
400
-360
40

$0.11\overline{6}$

39. $\frac{43}{9}$

$9\overline{)43.000}\quad 4.777$
-36
70
-63
70
-63
70
-63
7

$4.\overline{7}$

Directions: Compare by placing a <, >, or = symbol in the circle.

40. 1.197 (<) $1\frac{2}{5}$

1.4

$5\overline{)2.0}\quad .4$
-20
0

41. $\frac{11}{15}$ (>) 0.73

$0.7\overline{3}$

$15\overline{)11.000}\quad .733$
-105
50
-45
50
-45
5

42. $2\frac{9}{14}$ (<) $2.\overline{6}$

2.642

$14\overline{)9.000}\quad .642$
-84
60
-56
40
-28
12

43. The table below shows the amount of time, in hours, that three students spent studying for their math test. Which student spent the most time studying?

Elena	$1\frac{4}{7}$
Mina	1.56
Darrell	$1\frac{7}{12}$

1.57

$1.58\overline{3}$

.571
7|4.000
-35
50
-49
10
-7
3

.583
12|7.000
-60
100
-96
40
-36
4

Darrell

44. Order from least to greatest: $0.\overline{45}, \frac{9}{20}, \frac{4}{9}$

.45
20|9.00
-80
100
-100
0

.444
9|4.000
-36
40
-36
40
-36
4

0.45 $0.\overline{4}$

$\frac{4}{9}, \frac{9}{20}, 0.\overline{45}$

Topic 5: Negative Rational Numbers

Directions: Find each absolute value.

45. $|4.07|$ 4.07

46. $\left|-2\frac{1}{6}\right|$ $2\frac{1}{6}$

47. $\left|\frac{11}{15}\right|$ $\frac{11}{15}$

48. $|-0.832|$ 0.832

Directions: Compare by placing a <, >, or = symbol in the circle.

49. $-\frac{3}{4}$ (>) $-\frac{17}{20}$

$\frac{-15}{20}$

50. $-1\frac{5}{12}$ (<) $-1\frac{3}{8}$

$-1\frac{10}{24}$ $-1\frac{9}{24}$

51. -4.15 (<) -4.087

52. $-3\frac{1}{6}$ (>) -3.2

$-3.1\overline{6}$

.166
6|1.000
-6
40
-36
40
-36
4

53. -2.08 (=) $-2\frac{2}{25}$

-2.08

.08
25|2.00
-0
200
-200
0

54. $-4\frac{2}{3}$ (<) -4.6

$-4.\overline{6}$

.666
3|2.000
-18
20
-18
20
-18
2

55. Order from least to greatest:

$-\frac{7}{25}, -0.35, -0.2$

$-.28$

.28
25|7.00
-50
200
-200
0

$-0.35, -0.28, -0.2$

56. Order from greatest to least:

$-2\frac{1}{3}, -2.61, -2\frac{2}{5}$

.33
3|1.00
-9
10
-9
1

$-2.\overline{3}$ -2.4

4
5|2.0
-20
0

$-2\frac{1}{3}, -2\frac{2}{5}, -2.61$

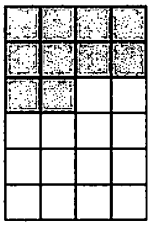
Name: _____

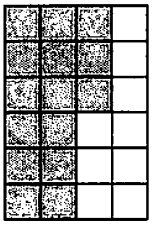
Date: _____ Per: _____

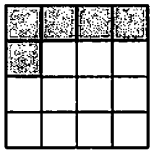
Unit 3 Test

Rational Numbers

1. Which model is equivalent to the fraction $\frac{5}{8}$?

A. 

B. 

C. 

D. 

$\frac{15}{24} = \frac{5}{8}$

B

Evaluate. Write each answer as a fraction in simplest form. Use a mixed number when possible.

2. $\frac{5}{6} + 1\frac{7}{15}$

$\frac{5}{6} + \frac{22}{15}$

$= \frac{25}{30} + \frac{44}{30}$

$= \frac{69}{30}$

$= \frac{23}{10}$

$2\frac{3}{10}$

3. $1\frac{1}{2} - \frac{3}{8} + 2\frac{1}{12}$

$\frac{3}{2} - \frac{3}{8} + \frac{25}{12}$

$\frac{12}{8} - \frac{3}{8} + \frac{25}{12}$

$\frac{9}{8} + \frac{25}{12}$

$\frac{27}{24} + \frac{50}{24} = \frac{77}{24}$

$3\frac{5}{24}$

4. $\frac{3}{5} \cdot \frac{1}{4}$

$\frac{3}{5} \cdot \frac{1}{4} = \frac{3}{20}$

$\frac{3}{20}$

5. $1\frac{17}{18} \cdot \left(\frac{4}{3} - \frac{8}{15}\right)$

$\frac{35}{18} \cdot \left(\frac{20}{15} - \frac{8}{15}\right)$

$\frac{7}{3}\frac{35}{18} \cdot \frac{12^{2}}{15_{3}} = \frac{14}{9}$

$1\frac{5}{9}$

6. $\frac{9}{16} \div \frac{15}{26}$

$\frac{3}{8}\frac{9}{16} \cdot \frac{26^{13}}{15_{5}} = \frac{39}{40}$

$\frac{39}{40}$

7. $2\frac{2}{3} + \frac{9}{4} \div 3$

$\frac{8}{3} + \frac{9^{3}}{4} \cdot \frac{1}{3_{1}}$

$\frac{8}{3} + \frac{3}{4} = \frac{32}{12} + \frac{9}{12}$

$= \frac{41}{12}$

$3\frac{5}{12}$

8. Samantha ran one mile in $8\frac{7}{8}$ minutes. This was $1\frac{3}{10}$ minutes longer than her friend Marissa's time. What was Marissa's time?

$$8\tfrac{7}{8} - 1\tfrac{3}{10}$$

$$= \frac{71}{8} - \frac{13}{10}$$

$$= \frac{355}{40} - \frac{52}{40}$$

$$= \frac{303}{40}$$

A. $7\frac{27}{40}$ minutes **C.** $7\frac{13}{20}$ minutes

B. $7\frac{23}{40}$ minutes **D.** $7\frac{11}{20}$ minutes

B

9. A stretch of the highway between Exit A and Exit B is $16\frac{8}{9}$ miles long. If a car breaks down $\frac{3}{4}$ of the way from Exit A to Exit B, how far is the car from Exit A?

$$16\tfrac{8}{9} \cdot \frac{3}{4}$$

$$= \frac{38}{39} \cdot \frac{3}{4}$$

$$= \frac{38}{3}$$

A. $12\frac{5}{6}$ miles **C.** $9\frac{7}{18}$ miles

B. $12\frac{2}{3}$ miles **D.** $9\frac{11}{12}$ miles

B

10. If $4\frac{1}{6}$ ounces of red paint is combined with $3\frac{14}{15}$ ounces of yellow paint to create orange paint, how many ounces of orange paint are in the mixture?

$$4\tfrac{1}{6} + 3\tfrac{14}{15}$$

$$= \frac{25}{6} + \frac{59}{15}$$

$$= \frac{125}{30} + \frac{118}{30} = \frac{243}{30}$$

$$= \frac{81}{10}$$

A. $7\frac{29}{30}$ ounces **C.** $8\frac{1}{10}$ ounces

B. $7\frac{14}{15}$ ounces **D.** $8\frac{2}{15}$ ounces

C

11. Derek has 4 rolls of wire. Each roll of wire is $17\frac{5}{8}$ feet long. If he needs to cut the wire into pieces that are $1\frac{1}{8}$ feet long, how many pieces of wire can he cut using these 4 rolls of wire?

$$4 \cdot 17\tfrac{5}{8}$$

$$= \frac{4}{1} \cdot \frac{141}{8}$$

$$= \frac{141}{2}$$

$$\frac{141}{2} \div \frac{9}{8}$$

$$= \frac{47}{1} \cdot \frac{84}{3}$$

$$= \frac{188}{3} = 62\frac{2}{3}$$

A. 16 pieces

B. 48 pieces

C. 62 pieces

D. 63 pieces

C

Evaluate. Write each answer as a decimal.

12. $21.253 - 9.98$

$$\begin{array}{r} {}^{0}{}^{11}{}^{15} \\ 21.\cancel{2}\cancel{5}3 \\ -\ 9.980 \\ \hline 11.273 \end{array}$$

11.273

13. 0.74×12.55

$$\begin{array}{r} 12.55 \\ \times\ 0.74 \\ \hline 5020 \\ 87850 \\ \hline 9.2870 \end{array}$$

9.287

14. $3.2(7.419)$

$$\begin{array}{r} 7.419 \\ \times\quad 3.2 \\ \hline 14838 \\ 22257\,0 \\ \hline 23.7408 \end{array}$$

23.7408

15. $52.02 \div 9$

$$\begin{array}{r} 5.78 \\ 9\overline{)52.02} \\ -45 \\ \hline 70 \\ -63 \\ \hline 72 \\ -72 \\ \hline 0 \end{array}$$

5.78

16. $\frac{45.2}{1.6}$

$$\begin{array}{r} 28.25 \\ 16\overline{)452.00} \\ -32 \\ \hline 132 \\ -128 \\ \hline 40 \\ -32 \\ \hline 80 \\ -80 \\ \hline 0 \end{array}$$

28.25

17. $16.5 \div 0.04$

$$\begin{array}{r} 412.5 \\ 4\overline{)1650.0} \\ -16 \\ \hline 05 \\ -4 \\ \hline 10 \\ -8 \\ \hline 20 \\ -20 \\ \hline 0 \end{array}$$

412.5

18. Callie is buying a TV that costs $648.87 in total with tax. If she pays for the TV in four equal monthly payments, how much, to the nearest cent, will she pay each month?

$$4\overline{)648.870} = 162.217$$

-4, 24, -24, 08, -8, 08, -8, 07, -4, 30, -28, 2

$162.22

19. The total rainfall in a certain city was 29.785 inches last year. This was 1.08 inches less than the average annual rainfall. Find the average annual rainfall.

$$29.785 + 1.080 = 30.865$$

30.865 in

20. Blair is buying strawberries and bananas to make smoothies. Strawberries cost $1.80 per pound and bananas cost $0.55 per pound. If she buys 3.25 pounds of strawberries and 2.6 pounds of bananas and pays with a $20 bill, how much will change will she receive?

$1.80 \times 3.25 = 5.850$

$0.55 \times 2.6 = 1.430$

$5.85 + 1.43 = 7.28$

$20.00 - 7.28 = 12.72$

$12.72

21. Andy is using wooden boards that are 0.45 feet wide to build a deck. How many rows of boards are needed to cover a space that is 21 feet wide?

$$45\overline{)2100.0} = 46.6$$

-180, 300, -270, 300, -270, 30

A. 44 boards
B. 46 boards
C. 47 boards
D. 49 boards

C

22. Write as a mixed number in simplest form:

5.76

$5\frac{76}{100}$

$5\frac{19}{25}$

23. Write as a decimal:

$1\frac{3}{16}$

$16\overline{)3.0000} = .1875$

-16, 140, -128, 120, -112, 80, -80, 0

1.1875

24. Write as a decimal:

$4\frac{7}{30}$

$30\overline{)7.000} = .233$

-60, 100, -90, 100, -90, 10

$0.2\overline{3}$

25. Which values are less than 0.324? Check all that apply.

$20\overline{)7.00}$ → .35 (-60, 100, -100, 0)

$15\overline{)4.000}$ → .266 (-30, 100, -90, 100, -90, 10)

$40\overline{)13.000}$ → .325 (-120, 100, -80, 200, -200, 0)

$12\overline{)5.0000}$ → .4166 (-48, 20, -12, 80, -72, 8)

0.35

☐ $\frac{7}{20}$	☑ $\frac{4}{15}$ $0.2\overline{6}$
☐ $\frac{13}{40}$ 0.325	☐ $\frac{5}{12}$ $0.41\overline{6}$
☑ 0.0975	☑ 0.18

26. Which statement is true?

A. $2.08 > 2\frac{1}{5}$ $2.08 > 2.2$

B. $\frac{5}{16} = 0.32$ $0.3125 = 0.32$

C. $1\frac{12}{25} < 1.45$ $1.48 < 1.45$

D. $\frac{2}{9} > 0.2$ $0.\overline{2} > 0.2$

D

27. If the list of numbers below is ordered from **least to greatest**, which value could go in the box?

$\left\{1.78, \boxed{?}, 1\frac{5}{6}\right\}$ ↑ $1.8\overline{3}$

A. 1.095

B. $1\frac{9}{11}$ $1.\overline{81}$

C. $1\frac{3}{4}$ 1.75

D. $1\frac{17}{20}$ 1.85

B

28. Which statement is true?

A. $|-6.2| = 6.2$

B. $|6.2| = -6.2$

C. $\left|-\frac{1}{4}\right| = 4$

D. $\left|-\frac{1}{4}\right| = -\frac{1}{4}$

A

29. Which value is the greatest?

A. −1.25

B. −0.85

C. $-\frac{2}{3}$ $-0.\overline{6}$

D. $-\frac{7}{10}$ −0.7

C

30. Four values are given below. List the values in order from **greatest to least** using the letters.

A	−1.5
B	$-1\frac{1}{6}$ $-1.1\overline{6}$
C	$-1\frac{1}{3}$ $-1.\overline{3}$
D	−1.09

$6\overline{)1.000}$ → .166 (-6, 40, -36, 40, -36, 4)

$3\overline{)1.000}$ → .333 (-9, 10, -9, 10, -9, 1)

D, B, C, A