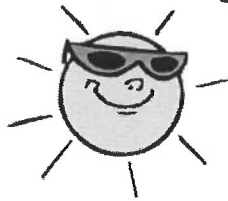# Grade 6

Entering

Grade 7

Summer Math Packet

Name _____

Summer

Math Packet

Review of Number Sense Skills for Students Entering Math 7

No Calculators!

- The purpose of this summer math packet is to provide you with notes and practice problems to help you review what you learned in sixth grade math.
- The summer math packet will NOT be graded. However, you are responsible for this material.
- Within the first few days of Math 7, you will be assessed on the math skills reviewed in this summer math packet. The assessment will count as a quiz grade in the first marking period.

Materials Required for Math 7:

- hole-punched spiral notebook
- binder with dividers (this binder may be shared with other classes)
- scientific calculator (TI-30XIIS from Texas Instruments is preferred)
- many, many sharpened pencils with erasers (additional eraser would be useful)
- correcting pen (NOT dark blue or black ink, please)

Review Topics Covered in the Summer Math Packet

1. Order of Operations
2. Place Value of Decimals
3. Different Forms of Writing Numbers
4. Rounding Decimals
5. Comparing and Ordering Decimals
6. Adding and Subtracting Decimals
7. Multiplying Decimals
8. Dividing Decimals
9. Fractions, Mixed Numbers, and Improper Fractions
10. Equivalent Fractions
11. Reducing or Simplifying Fractions
12. Comparing and Ordering Fractions
13. Adding and Subtracting Fractions
14. Multiplying Fractions
15. Dividing Fractions
16. Equivalent Fractions, Decimals, and Percents
17. Finding the Percent of a Number
18. Converting within the Metric System
19. Converting within the Customary System of Measurement

NOTES

Order of Operations

1. Parentheses and other grouping symbols
2. Exponents
3. Multiplication and division from left to right
4. Addition and subtraction from left to right

PRACTICE

1) $(13+19) \div (9-5)$

2) $(14+23-5) \div 4$

3) $3 \times 13 \times (3-8)$

4) $(11+49) \div (9-4)$

5) $(10+5) + 12 \div 4$

6) $(33-3^2) \div (-3+7)$

7) $(34-4) \div 3 + 3^2$

8) $6 \times (9-4) + 5^2$

9) $3 \times (14+3) - 5^2$
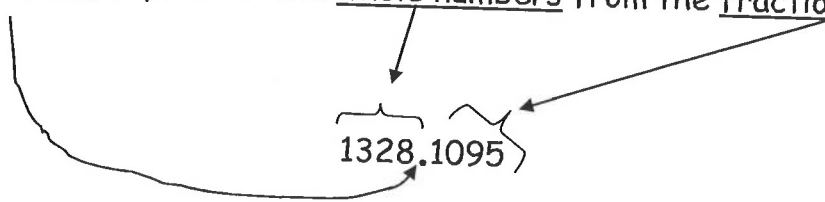
10) $(7 \times 10 + 4^2) + 2$

NOTES

Decimal Place Values
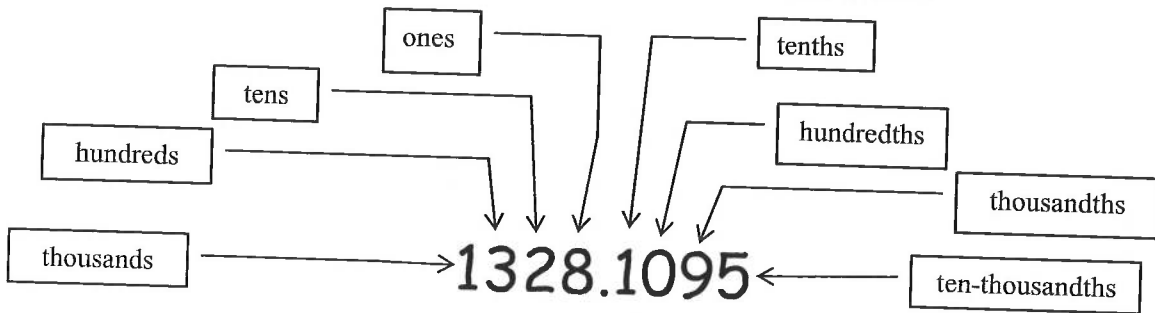
The <u>decimal point</u> separates the <u>whole numbers</u> from the <u>fractional part</u> of a number.

1328.1095

In a whole number the <u>decimal point is all the way to the right</u>, even if it is not shown in a problem.

25 = 25.

The place values of the number 1328.1095 are shown below:

1328.1095

The word "AND" is where the decimal point will go.

PRACTICE

1) In the number 2039.876, which digit is in the tenths place? _____

2) In the number 2039.876, which digit is in the tens place? _____

3) In the number 2039.876, which digit is in the thousands place? _____

4) In the number 2039.876, which digit is in the thousandths place? _____

5) In the number 6174.903, what digit is in the thousandths place? _____

6) In the number 6174.903, what digit is in the hundredths place? _____

7) In the number 6174.903, what digit is in the tenths place? _____

8) In the number 6174.903, what digit is in the ones place? _____

NOTES

Decimals can be written in standard, word, or expanded forms. For example, the number 34.215 can be written in:

- STANDARD FORM = 34.215
- WORD FORM = thirty-four and two hundred fifteen thousandths
- EXPANDED FORM = $(3 \times 10) + (4 \times 1) + (2 \times 0.1) + (1 \times 0.01) + (5 \times 0.001)$

PRACTICE

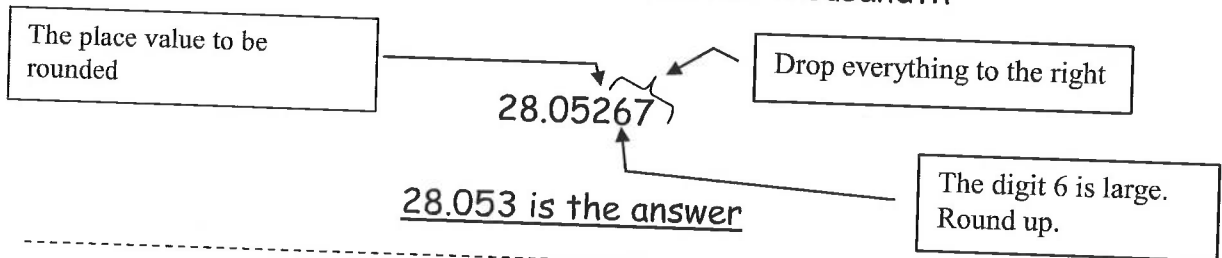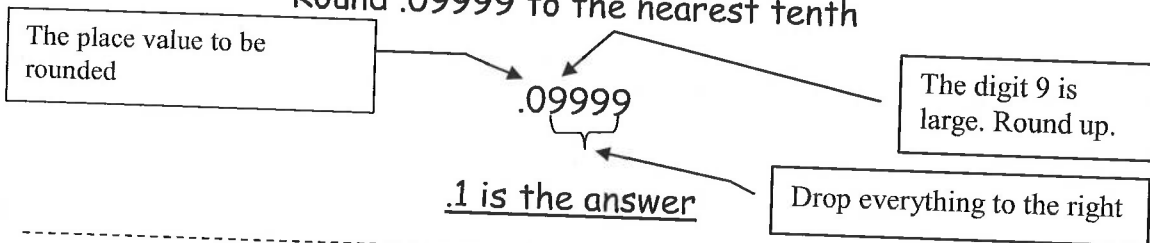| WORD FORM	STANDARD FORM	EXPANDED FORM
Eighty-one hundredths		
Nine thousand thirty-four and seven tenths		
Five hundred nine thousandths		
	44.907	
	1.004	
	0.45	
		$(1 \times 0.01) + (3 \times 0.001)$
		$(2 \times 100) + (1 \times 1) + (4 \times 0.01) + (8 \times 0.001)$
		$(6 \times 1) + (7 \times 0.1)$

NOTES

Rounding Decimal Numbers

When rounding decimals, first look at the place value to be rounded. Then look at the digit immediately to its right. If that digit is less than 5 (0, 1, 2, 3, or 4), then do NOT round up. If the digit is 5 or more, then round up.

5.6932

| The place value to be rounded |

The digit 2 is small. Do not round up.

5.693 is the answer
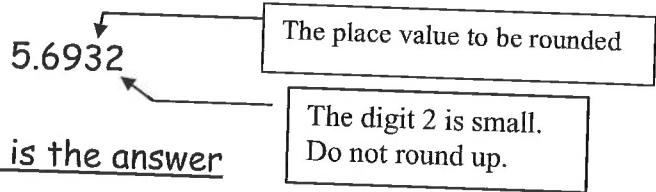
Round 28.05267 to the nearest thousandth

| The place value to be rounded |

28.05267

Drop everything to the right

The digit 6 is large. Round up.

28.053 is the answer

Round .09999 to the nearest tenth

| The place value to be rounded |

.09999

The digit 9 is large. Round up.

Drop everything to the right

.1 is the answer

Round .04999 to the nearest tenth

| The place value to be rounded |

.04999

The digit 4 is small. Do not round up.

Drop everything to the right

.0 is the answer
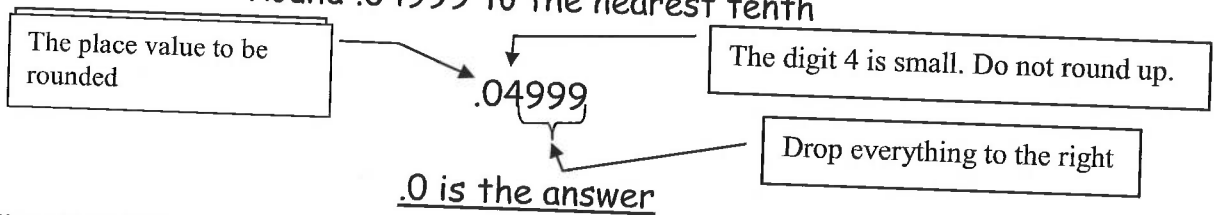
Round 199.99 to the nearest whole (ones) number

| The place value to be rounded |

199.99

The digit 9 is large. Round up.

Drop everything to the right

200 is the answer
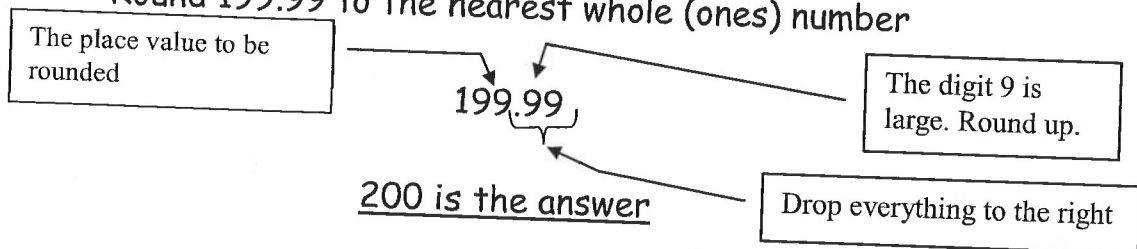
PRACTICE

Round each decimal to the indicated place value.

1) .1325 to thousandths   _____

2) .0091 to thousandths   _____

3) .0196 to thousandths   _____

4) 5.1234 to thousandths   _____

5) 6.6666 to thousandths   _____

6) 40.61884 to thousandths   _____

7) 1.99999 to thousandths   _____

8) .1325 to hundredths   _____

9) .0091 to hundredths   _____

10) .3333 to hundredths   _____

11) 5.567 to hundredths   _____

12) 48.001 to hundredths   _____

13) 7.987 to tenths   _____

14) .666 to tenths   _____

15) 1.32 to tenths   _____

16) 99.99 to tenths   _____

17) .5 to whole (ones) number   _____
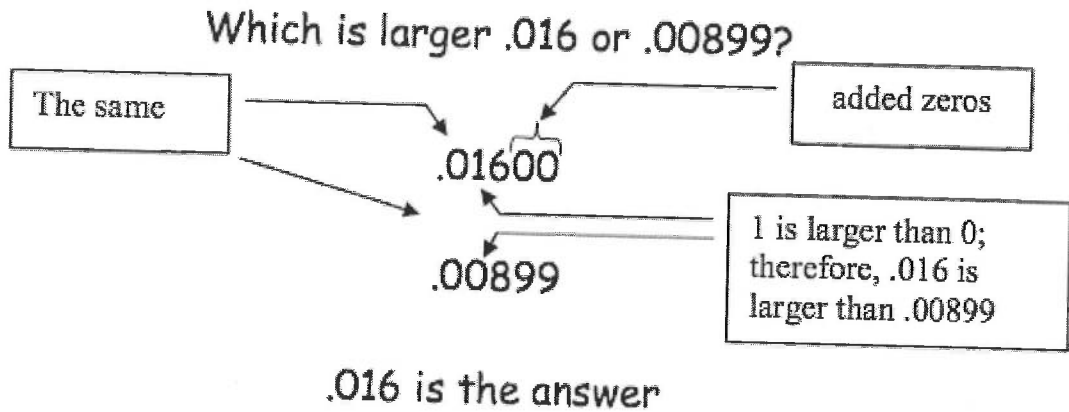
18) 11.99 to whole (ones) number _____

19) 499 to the nearest hundred   _____
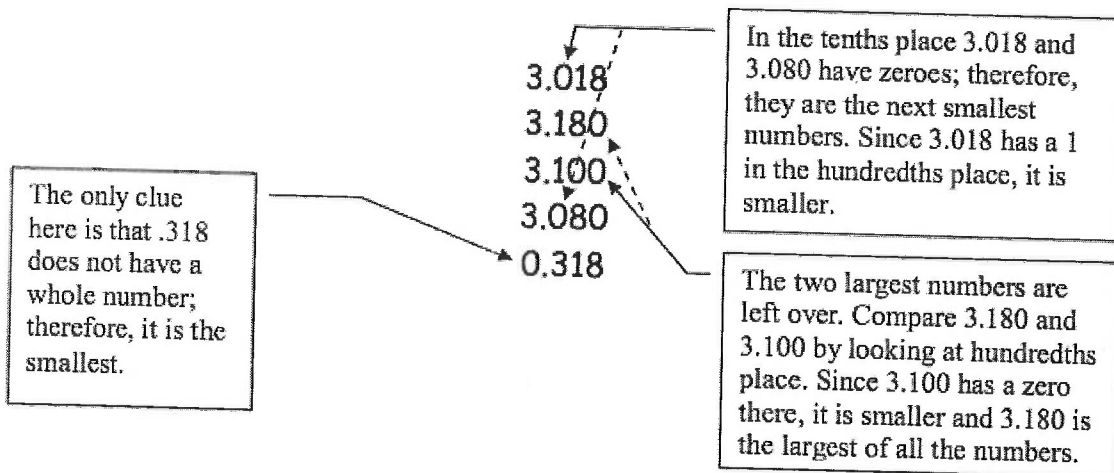
20) 999 to the nearest thousand   _____

NOTES

Comparing and Ordering Decimals

When comparing and ordering decimals, it is usually easiest to line up the numbers vertically with the decimal points in a vertical line. If a number doesn't have a decimal point, place the decimal point at the end. You may fill in blanks spaces with zeroes to make the columns easier to compare.

Which is larger .016 or .00899?

| The same | | added zeros |

.01600

.00899

1 is larger than 0; therefore, .016 is larger than .00899

.016 is the answer

Example: Order the decimals from least to greatest.

3.018
3.180
3.100
3.080
0.318

In the tenths place 3.018 and 3.080 have zeroes; therefore, they are the next smallest numbers. Since 3.018 has a 1 in the hundredths place, it is smaller.

The only clue here is that .318 does not have a whole number; therefore, it is the smallest.

The two largest numbers are left over. Compare 3.180 and 3.100 by looking at hundredths place. Since 3.100 has a zero there, it is smaller and 3.180 is the largest of all the numbers.

ANSWER

.318   3.018   3.08   3.1   3.18

PRACTICE

Order these decimals from greatest to least.

1) 2.62   2.061   2.612   0.66   6.21

2) 14.01   140.1   1.401   14.1   14.11

3) .0067   .007   .00618   .00701   .006

4) .1   .01   1   1.1   .019

5) 5.1   5   5.01   5.09   5.91

Order these decimals from least to greatest.

6) 7.8   8.7   8.2   7.96   8.014

7) 0.15   .01   .1   .0101   .001

8) 94   93.999   93.909   93.99901   94.0001

9) 16.83   16.38   16.3   16.8   16

10) 3.49   3.489   3.4899   3.48999   3.48989

NOTES

Adding and Subtracting Decimal Numbers

When adding and subtracting decimal numbers, line up the decimal point of all the numbers. If a number does not show a decimal point, place one to the right of the whole number. You may add zeroes to keep the columns lined up.

Add 13.6 and 42.18

$$
\begin{array}{r}
13.60 \\
+\ \underline{42.18} \\
55.78
\end{array}
$$

Add a zero

Add 1347 and .0005

$$
\begin{array}{r}
1347.0000 \\
+\ \underline{.0005} \\
1347.0005
\end{array}
$$

Add zeroes

Subtract 14.69 from 113.06

$$
\begin{array}{r}
113.06 \\
-\ \underline{14.69} \\
98.37
\end{array}
$$

The wording here can be confusing. Notice how "subtract 14.69 from 113.06" means 113.06 – 14.69

146 – 3.198

$$
\begin{array}{r}
146.000 \\
-\ \underline{3.198} \\
142.802
\end{array}
$$

Add zeroes

10

PRACTICE

1)
```
    8.7
 +  5.4
 _____
```

2) 74.906 + .01 + 42 =

3) 8416 + .28 + 1.489 =

4)
```
   38.64
 -  8.87
 _____
```

5) 462 – 31.2 =

6) 16.001 - 12.984 =

7) .1 + 1.9 + 13 =

8) 20 – 14.8 - .018 =

9) 6 + 132.89 =

10) 346.8912 - 29.98764

11)
```
   11.00001
 -  1.11234
 _____
```

12)
```
   1234.
 -    .1234
 _____
```

13) 124.8 + 3.79 – 118.965

14) Subtract 6.8 from 14.2

15) Subtract 38.97 from 59

16) Add .001 to 87

17) Add 5000 to .0186

18)
```
     .40
    3.80
   26.91
 + 587.89
 _____
```

19)
```
   143.012
 +  98.764
 _____
```

20) Subtract .001 from .01

NOTES

Multiplying Decimal Numbers

When multiplying decimal numbers, set up the problem like regular multiplication. When you get your answer, add up the total number of digits to the right of the decimals in both the numbers you are multiplying and place the decimal in your answer that many places from the right end.

$.02 \times .008$

$$
\begin{array}{r}
.008 \\
\times\ .02 \\
\hline
.00016
\end{array}
$$

.008 ← three digits

.00016 is the answer

.02 ← two digits

.00016 ← five digits

$20 \times .8$

$$
\begin{array}{r}
20 \\
\times\ .8 \\
\hline
16.0
\end{array}
$$

16.0 is the answer

When multiplying three numbers together, multiply any two to get an answer; then multiply that answer by the third number.

$.3 \times 1.02 \times 46$

$$
\begin{array}{r}
1.02 \\
\times\ .3 \\
\hline
.306
\end{array}
$$

1.02 ← two digits

.3 ← one digit

.306 ← three digits

$$
\begin{array}{r}
.306 \\
\times\ 46 \\
\hline
1836 \\
1224 \\
\hline
14.076
\end{array}
$$

14.076 is the answer

12

PRACTICE

1) 1.67×3.2 2) $84.78 \times .612$ 3) $98.47 \times .7$

4)
$$\begin{array}{r} .8842 \\ \times\ .002 \\ \hline \end{array}$$

5)
$$\begin{array}{r} 5.76 \\ \times\ .25 \\ \hline \end{array}$$

6)
$$\begin{array}{r} 8.04 \\ \times\ .004 \\ \hline \end{array}$$

7)
$$\begin{array}{r} 8.45 \\ \times\ .36 \\ \hline \end{array}$$

8)
$$\begin{array}{r} 4.095 \\ \times\ .006 \\ \hline \end{array}$$

9)
$$\begin{array}{r} 11.4 \\ \times\ 18 \\ \hline \end{array}$$

10)
$$\begin{array}{r} 36 \\ \times\ 1.1 \\ \hline \end{array}$$

11)
$$\begin{array}{r} .001 \\ \times\ .001 \\ \hline \end{array}$$

12)
$$\begin{array}{r} 8.88 \\ \times\ .88 \\ \hline \end{array}$$

13)
$$\begin{array}{r} 12.34 \\ \times\ 43.21 \\ \hline \end{array}$$

14) $.1 \times .1 \times .1$

NOTES

Dividing Decimal Numbers

Here are the three ways you will see division problems; they all mean the same thing:

$$\frac{46.58}{2.1} \qquad\qquad 2.1\overline{)46.58} \qquad\qquad 46.58 \div 2.1$$

When dividing decimal numbers, move the decimal point in the divisor (number you're dividing by) to the right end of the divisor. Then move the decimal point in the dividend (the number you're dividing <u>into</u>) the same number of places to the right as you moved it in the divisor.

Once you have placed the decimal point correctly in your **quotient** (answer), divide like you would in whole numbers.

Rounded to hundredth

```
      2 3                  2 0.              9.4 1 1 7                    . 1 7 3
   .2)4.6              .26)5.20          1.7)16.00000 = 9.41      15)2.600 = .17
      4                      5 2             15 3                        1 5
      ―                      ――             ――――                        ――
      6                      0               70                          1 10
      6                                      68                          1 05
      ―                                     ――                          ――――
      0                                      20                          50
                                             17                          45
                                            ――                          ――
                                             30                          5
                                             17
                                            ――
                                            130
                                            119
                                            ―――
                                             11
```

PRACTICE

Directions: Divide. Round answers to hundredths, if necessary

1) $.3\overline{).69}$

2) $.82\overline{)16.4}$

3) $.002\overline{)4}$

4) $1.4\overline{)280}$

5) $25\overline{)4}$

6) $37\overline{)1.68}$

7) $.66\overline{)15.18}$

8) $1.87\overline{)3.96}$

9) $329\overline{)2.303}$

10) $.64\overline{).14208}$

11) $20\overline{).1}$

12) $.3\overline{)85}$

13) $5.86\overline{)250}$

14) $.789\overline{)315.6}$

15) $2.8\overline{)7.006}$

NOTES

Word Problems with Decimals

Definitions:
  <u>Sum</u> – the answer from adding numbers
  <u>Difference</u> – the answer from subtracting numbers
  <u>Product</u> – the answer from multiplying numbers
  <u>Quotient</u> – the answer from dividing numbers

In solving word problems, try to understand the whole situation being described. Some numbers may not even be involved in answering the question. Sometimes you will have to do extra steps to get the numbers you need to solve the problem.

If the annual rainfall for a town near Santa Fe was 12.3 inches in 1960, 13.2 inches in 1961, and 11.5 in 1962, what was the total rainfall for the three years?

"Total" means to add

$$\begin{array}{r} 12.3 \\ 13.2 \\ + \ 11.5 \\ \hline 37.0 \end{array}$$

37.0 inches is the answer

What is the difference between David's salary of $523.86 per month and Robert's monthly salary, which is $318.90?

"Difference" means to subtract

$$\begin{array}{r} 523.86 \\ - \ 318.90 \\ \hline 204.96 \end{array}$$

$204.96 is the answer

If you have a car that used 19.2 gallons of gas to go 285 miles, how many miles per gallon (mpg) did the car get? (round your answer to the nearest tenth.)

$mpg = \dfrac{miles}{gallon} = \dfrac{285 \ miles}{19.2 \ gallon}$; so divide 19.2 into 285

$$19.2\overline{)285.000} \quad = 14.84$$

14.8 mpg is the answer

You need to order three hinges for each of 15 doors. Each hinge costs $.75. How much will the hinges cost?

  The total number of hinges is 3 x 15 = 45
  Multiply 45 x .75 = 33.75 $33.75 is the answer

PRACTICE

1) During five days, you drive 15.4 miles, 24.2 miles, 10.4 miles, 18.7 miles, and 7.5 miles. How many miles did you drive during those five days?

2) If you are given 3 checks, one for $36.98, another for $17.27, and a third for $260, how much is the total of all 3 checks?

3) If a car gets 42.1 mpg on the highway, how many gallons of fuel will it use by traveling 340 highway miles? (round answer to tenths)

4) If you need to cut 5 pieces of glass from a 14 feet length, how long should each piece be?

5) If you purchase a TV and pay $40 down and $32.60 a month for 8 months, what was the purchase price of the TV?

6) If the revenues from the extra $\frac{1}{4}$ % sales tax amounted to $48,136.47 in 1983 and is to be divided equally among 7 different departments within the city of Albuquerque, how much will each department receive? (round to the nearest cent)

7) If the total precipitation (rainfall and snow) for the year at a mountain town is expected to be 37.9 inches and it has already rained 26.82 inches, how many more inches of precipitation are expected?

MIXED DECIMALS PRACTICE

Change to decimals. (round to hundredths)

1) $\dfrac{2}{5}$

2) $\dfrac{1}{6}$

3) $\dfrac{3}{8}$

4) $5\dfrac{1}{2}$

Change to fractions (reduce, if possible)

5) .25

6) .66

7) 2.4

8) 42.875

Add

9)   3.7
 + 8.9

10) 75.006
     2.3
   15.863
 + 246.9

11) 8.1 + 268 + 49.64

Subtract

12) 3.16
 - 1.87

13) 162.8 – 46.96

14) Subtract 1.97 from 15.1

Multiply

15) 5.82
  x .78

16) .165
  x 74

17) .01 x .167 x .9

Divide (round answers to hundredths)

18) $.7\overline{).49}$

19) $8.5\overline{).17}$

20) $.172\overline{)2}$

18

21) Arrange from largest to smallest

.808, .81, .8019, .807 .8

22) Arrange from smallest to largest

1.62, 1.6, 1.06, 1.16, 1.66

23) Subtract four and three-tenths from eleven and eighty-one hundredths.

24) If you ran 5.3 miles on Monday, 3.9 miles on Wednesday, and 4.7 miles on Friday, how many miles did you run, total, for the three days?
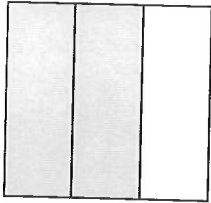
25) If you divided $63.65 evenly among five children, how much would each child get?

26) If you bought 12.6 gallons of gasoline at $1.20 per gallon, how much did the gasoline cost?

NOTES
Fractions

-A **fraction** is a symbol used to name a part of a whole, a part of a set, a location on a number line, or a division of whole numbers.
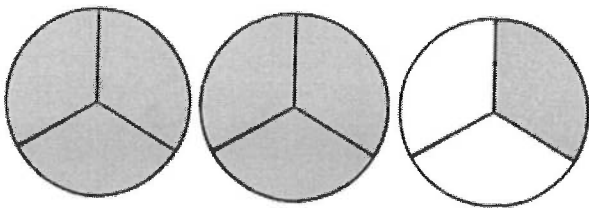

$\frac{2}{3}$

→ Numerator –number of parts of the whole

→ Denominator –total number of equal parts

The larger the denominator the smaller each piece of the whole is. This is because the whole needs to be separated into more pieces.

Improper Fractions

An improper fraction has a numerator greater than its denominator.

A mixed number has a whole number and a fraction.

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

PRACTICE
Write the fraction for each situation.

1. It's 25 miles to Gramma's. We have already driven 11 miles. What fraction of the way have we driven?

2. A pizza was cut into twelve slices. Seven were eaten. What fraction of the pizza was eaten?

3. There are 24 students in a class. 8 have passed the fractions test. What fraction of the students have passed fractions?

Converting Mixed Numbers & Improper Fractions

*Use division to convert an improper fraction into a mixed number.

Step 1: Divide the numerator by the denominator

$$\frac{12}{8}$$

$$8\overline{)12} \atop \underline{-8} \atop \;\;4}$$ with quotient 1

Step 2: Write the remainder as a fraction (over the denominator)

$$\frac{4}{8}$$

Step 3: Write your answer as a mixed number and simplify if necessary

$$1\frac{4}{8} \begin{matrix} \div 2 = \\ \div 2 = \end{matrix} 1\frac{2}{4}$$

*Use multiplication to convert a mixed number into an improper fraction.

Step 1: Multiply the whole number by the denominator.

$$3\frac{3}{4} \qquad 3 \times 4 = 12$$

Step 2: Add your answer to the numerator

$$12 + 3 = 15$$

Step 3: Put the new numerator over the old denominator.

$$\frac{15}{4}$$

21

PRACTICE

Write the mixed number for each improper fraction.

1a. $\dfrac{55}{18}$

1b. $\dfrac{38}{12}$

1c. $\dfrac{20}{15}$

2a. $\dfrac{45}{3}$

2b. $\dfrac{14}{10}$

2c. $\dfrac{48}{15}$

3a. $\dfrac{29}{20}$

3b. $\dfrac{34}{18}$

3c. $\dfrac{20}{2}$

Write the improper fraction for each mixed number.

1a. $2\dfrac{11}{15}$

1b. $18\dfrac{2}{9}$

1c. $18\dfrac{7}{19}$

2a. $8\dfrac{8}{10}$

2b. $15\dfrac{16}{17}$

2c. $18\dfrac{10}{13}$

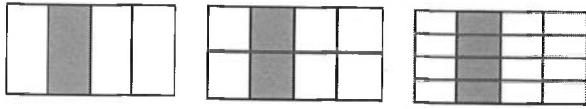3a. $14\dfrac{15}{16}$

3b. $11\dfrac{4}{7}$

3c. $17\dfrac{3}{16}$

Notes

Equivalent Fractions

Equivalent fractions are fractions that name the AMOUNT in different ways.

$$\frac{1}{4} = \frac{2}{8} = \frac{4}{16}$$

To find equivalent fractions by using MULTIPLICATION, multiply the original fraction by a fraction that represents ONE WHOLE.

$$\frac{1}{3} \times \frac{2}{2} = \frac{2}{6} \times \frac{2}{2} = \frac{4}{12}$$

To find equivalent fractions by using DIVISION, divide the original fraction by a common factor of the numerator and denominator.

$$\frac{30 \div 6}{42 \div 6} = \frac{5}{7}$$

PRACTICE
Find the missing numerator or denominator.

1a. $\dfrac{}{3} = \dfrac{4}{12}$

1b. $\dfrac{2}{1} = \dfrac{30}{}$

1c. $\dfrac{1}{2} = \dfrac{3}{}$

2a. $\dfrac{}{1} = \dfrac{50}{5}$

2b. $\dfrac{2}{} = \dfrac{20}{10}$

2c. $\dfrac{5}{20} = \dfrac{1}{}$

3a. $\dfrac{12}{} = \dfrac{60}{5}$

3b. $\dfrac{21}{6} = \dfrac{7}{}$

3c. $\dfrac{1}{} = \dfrac{5}{5}$

23

Notes

Simplifying or Reducing Fractions

To simplify or reduce a fraction, divide both the numerator and denominator by the GREATEST COMMON FACTOR. If you do not know the greatest common factor, then keep dividing the fraction by a common factor until the only common factor is one.

$$\frac{12}{54} = \frac{6}{27} = \frac{2}{9} \qquad \text{OR} \qquad \frac{12}{54} \div \frac{6}{6} = \frac{2}{9}$$

PRACTICE

Simplify or reduce each fraction.

1a. $\dfrac{4}{16}$ 1b. $\dfrac{10}{26}$ 1c. $\dfrac{18}{18}$

2a. $\dfrac{6}{27}$ 2b. $\dfrac{3}{48}$ 2c. $\dfrac{10}{40}$

3a. $\dfrac{15}{48}$ 3b. $\dfrac{3}{45}$ 3c. $\dfrac{4}{24}$

4a. $\dfrac{20}{50}$ 4b. $\dfrac{7}{35}$ 4c. $\dfrac{9}{39}$

5a. $\dfrac{8}{56}$ 5b. $\dfrac{18}{33}$ 5c. $\dfrac{12}{20}$

NOTES

Comparing and Ordering Fractions

Step 1: Find a common denominator (LCM)

$$\frac{2}{3} \qquad \frac{7}{12} \qquad \frac{5}{8}$$

Step 2: Find equivalent fractions using the common denominator

$$
\begin{array}{l|l}
3 & 3,\ 6,\ 9,\ 12,\ 16, 28,\ 21,\ \mathbf{24} \\
12 & 12,\ \mathbf{24},\ 36 \\
8 & 8,\ 16,\ \mathbf{24}
\end{array}
$$

$2 \times 8 = \underline{16} \qquad 7 \times 2 = \underline{14} \qquad 5 \times 3 = \underline{15}$

$3 \times 8 = 24 \qquad 12 \times 2 = 24 \qquad 8 \times 3 = 24$

Step 3: Compare/Order

$$\frac{14}{24,} < \frac{15}{24,} < \frac{16}{24} \qquad \text{so} \qquad \frac{7}{12,} < \frac{2}{3,} < \frac{5}{8}$$

PRACTICE

Compare the fractions by using $>, <, or\ =$.

1a. $\dfrac{4}{12}\ \square\ \dfrac{1}{2}$	1b. $\dfrac{5}{11}\ \square\ \dfrac{1}{2}$	1c. $\dfrac{8}{8}\ \square\ \dfrac{11}{12}$
2a. $\dfrac{2}{4}\ \square\ \dfrac{11}{11}$	2b. $\dfrac{3}{10}\ \square\ \dfrac{2}{4}$	2c. $\dfrac{11}{12}\ \square\ \dfrac{11}{11}$
3a. $\dfrac{1}{2}\ \square\ \dfrac{1}{6}$	3b. $\dfrac{4}{5}\ \square\ \dfrac{9}{9}$	3c. $\dfrac{1}{2}\ \square\ \dfrac{6}{11}$

Order the fractions from LEAST to GREATEST.

1a. $\dfrac{6}{11},\ \dfrac{8}{11},\ \dfrac{5}{11}$	1b. $\dfrac{1}{7},\ \dfrac{3}{11},\ \dfrac{1}{2}$
2a. $\dfrac{8}{12},\ 1\dfrac{8}{11},\ \dfrac{8}{9}$	2b. $\dfrac{1}{2},\ \dfrac{3}{8},\ 1\dfrac{1}{4}$
3a. $\dfrac{8}{12},\ \dfrac{7}{12},\ \dfrac{3}{12}$	3b. $1\dfrac{4}{8},\ \dfrac{1}{10},\ 1\dfrac{2}{3}$

NOTES

Adding & Subtracting Fractions with LIKE Denominators

Step 1: Make sure the denominators are the same

$$\frac{5}{10} + \frac{3}{10} =$$

Step 2: Add or subtract the numerators

$$\frac{5}{10} + \frac{3}{10} = \frac{8}{10}$$

Step 3: The denominator stays the same

$$\frac{5}{10} + \frac{3}{10} = \frac{8}{10}$$

Step 4: Simplify if necessary

$$\frac{8 \div 2 = 4}{10 \div 2 = 5}$$

Adding & Subtracting Fractions with LIKE Denominators

Step 1: Find an equivalent fraction for both fractions, so that they both have the same denominator

$$\frac{4}{8} + \frac{1}{6} =$$

a) find the LCM of the denominators

8: 8, 16, 24, 32

6: 6, 12, 18, 24, 30

b) find the equivalent fraction

$$\frac{4}{8} \times \frac{3}{3} = \frac{12}{24} \qquad \frac{1}{6} \times \frac{4}{4} = \frac{4}{24}$$

Step 2: Once the denominators are the same, add or subtract the numerators

$$\frac{12}{24} + \frac{4}{24} = \frac{16}{}$$

Step 3: The denominator stays the same

$$\frac{12}{24} + \frac{4}{24} = \frac{16}{24}$$

Step 4: Simplify if necessary

$$\frac{16 \div 8 = 2}{24 \div 8 = 3}$$

PRACTICE
Find the sum.

1a. $\dfrac{4}{11} + \dfrac{9}{4} =$

1b. $\dfrac{10}{11} + \dfrac{1}{6} =$

2a. $\dfrac{1}{11} + \dfrac{5}{9} =$

2b. $\dfrac{9}{7} + \dfrac{5}{4} =$

3a. $\dfrac{9}{8} + \dfrac{9}{4} =$

3b. $\dfrac{6}{9} + \dfrac{6}{9} =$

4a. $4\dfrac{1}{2} + 5\dfrac{1}{4} =$

4b. $9\dfrac{2}{12} + 3\dfrac{3}{4} =$

5a. $2\dfrac{7}{8} + 10\dfrac{1}{3} =$

5b. $7\dfrac{1}{4} + 9\dfrac{1}{3} =$

6a. $4\dfrac{5}{12} + 3\dfrac{3}{4} =$

6b. $3\dfrac{2}{4} + 6\dfrac{6}{9} =$

PRACTICE
Find the difference.

1a. $\dfrac{4}{2} - \dfrac{2}{10} =$

1b. $\dfrac{7}{8} - \dfrac{1}{10} =$

2a. $\dfrac{4}{5} - \dfrac{2}{5} =$

2b. $\dfrac{6}{4} - \dfrac{10}{11} =$

3a. $7\dfrac{6}{8} - \dfrac{11}{3} =$

3b. $5\dfrac{2}{6} - \dfrac{1}{3} =$

4a. $7\dfrac{2}{10} - \dfrac{1}{2} =$

4b. $10\dfrac{4}{7} - \dfrac{6}{8} =$

5a. $8\dfrac{1}{2} - 8\dfrac{4}{9} =$

5b. $11\dfrac{5}{6} - 4\dfrac{4}{10} =$

6a. $8\dfrac{5}{8} - 7\dfrac{2}{3} =$

6b. $9\dfrac{8}{9} - 1\dfrac{8}{10} =$

WORD PROBLEMS PRACTICE

1. Find the total width of 3 boards that $1\frac{3}{4}$ inches wide, $\frac{7}{8}$ inch wide, and $1\frac{1}{2}$ inches wide.

2. A 7.15H tire is $6\frac{5}{8}$ inches wide and a 7.15C tire is $4\frac{3}{4}$ inches wide. What is the difference in their widths?

3. A patient is given $1\frac{1}{2}$ teaspoons of medicine in the morning and $2\frac{1}{4}$ teaspoons at night. How many teaspoons total does the patient receive daily?

4. $3\frac{1}{3}$ feet are cut off a board that is $12\frac{1}{4}$ feet long. How long is the remaining part of the board?

5. $\frac{3}{8}$ of the corn in the U.S. is grown in Iowa. $\frac{1}{4}$ of it is grown in Nebraska. How much of the corn supply is grown in the two states?

6. A runner jogs $7\frac{1}{5}$ miles east, $5\frac{1}{4}$ miles south, and $8\frac{2}{3}$ miles west. How far has she jogged?

7. If $3\frac{1}{2}$ ounce of cough syrup is used from a $9\frac{1}{4}$ ounce bottle, how much is left?

8. I set a goal to drink 64 ounces of water a day. If I drink $10\frac{1}{3}$ ounces in the morning, $15\frac{1}{2}$ ounces at noon, and $20\frac{5}{6}$ ounces at dinner, how many more ounces of water do I have to drink to reach my goal for the day?

9. Three sides of parking lot are measured to the following lengths: $108\frac{1}{4}$ feet, $162\frac{3}{8}$ feet, and $143\frac{1}{2}$ feet. If the distance around the lot is $518\frac{15}{16}$ feet, find the fourth side.

10. Gabriel wants to make five banners for the parade. He has 75 feet of material. The size of four of the banners are: $12\frac{1}{3}$ ft., $16\frac{1}{6}$ ft., $11\frac{3}{4}$ ft., and $14\frac{1}{2}$ ft. How much material is left for the fifth banner?

NOTES

Multiplying Fractions

Step 1: Multiply the Numerators

$$\frac{4}{5} \times \frac{3}{8} = 12$$

Step 2: Multiply the Denominators

$$\frac{4}{5} \times \frac{3}{8} = \frac{12}{40}$$

Step 2: Simplify if necessary.

$$\frac{12 \div 4 = 3}{40 \div 4 = 10}$$

Multiplying Whole Numbers and Mixed Numbers

Step 1: Change the whole number or mixed number to an improper fraction.

Step 2: Follow the rules for multiplying fractions.

$$1\frac{3}{4} \times 2\frac{1}{2} = ?$$

$$1 \times 4 + 3 = 7$$

$$2 \times 2 + 1 = 5$$

$$\frac{7}{4} \times \frac{5}{2} = \frac{35}{8} = 4\frac{3}{8}$$

PRACTICE
Find the product.

1a. $\dfrac{5}{6} \times \dfrac{5}{12} =$

1b. $\dfrac{8}{12} \times \dfrac{8}{11} =$

2a. $\dfrac{5}{12} \times \dfrac{9}{10} =$

2b. $\dfrac{2}{12} \times \dfrac{1}{6} =$

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3a. $8 \times \dfrac{8}{11} =$

3b. $3 \times \dfrac{5}{6} =$

4a. $\dfrac{7}{12} \times 1 =$

4b. $\dfrac{7}{8} \times 3 =$

5a. $4\dfrac{9}{12} \times 3\dfrac{1}{2} =$

5b. $10\dfrac{1}{9} \times 8\dfrac{8}{10} =$

6a. $9\dfrac{1}{3} \times 2\dfrac{2}{10} =$

6b. $9\dfrac{4}{7} \times 7\dfrac{1}{4} =$

NOTES

Dividing Fractions and Mixed Numbers

Step 1: Rewrite any whole numbers or mixed numbers as improper fractions.

Step 2: Keep the first fraction.

Step 3: Change the division sign to multiplication.

Step 4: Flip the second fraction to its reciprocal.

Step 5: Follow the rules for multiplying fractions.

Example 1	Example 2
$\frac{1}{3} \div \frac{4}{5}$ flip the second fraction... and multiply! $\frac{1}{3} \times \frac{5}{4} = \frac{5}{12}$	$1\frac{2}{7} \div 5 = \frac{9}{7} \div \frac{5}{1} = \frac{9}{7} \times \frac{1}{5}$ $= \frac{9 \times 1}{7 \times 5} = \frac{9}{35}$

PRACTICE
Find the quotient.

1a. $\frac{2}{12} \div \frac{2}{10} =$

1b. $\frac{3}{12} \div \frac{3}{5} =$

2a. $\frac{7}{12} \div \frac{4}{5} =$

2b. $\frac{1}{2} \div \frac{2}{4} =$

3a. $\dfrac{3}{12} \div 10 =$

3b. $\dfrac{3}{12} \div 6 =$

4a. $\dfrac{5}{8} \div 5 =$

4b. $\dfrac{1}{11} \div 7 =$

5a. $7 \div \dfrac{7}{8} =$

5b. $7 \div \dfrac{4}{10} =$

6a. $4 \div \dfrac{8}{11} =$

6b. $4 \div \dfrac{4}{10} =$

7a. $7\dfrac{2}{8} \div \dfrac{4}{6} =$

7b. $4\dfrac{8}{10} \div \dfrac{4}{11} =$

8a. $\dfrac{2}{9} \div 10\dfrac{2}{7} =$

8b. $\dfrac{6}{7} \div 5\dfrac{5}{6} =$

NOTES

FROM PERCENT TO DECIMAL

To <u>convert from percent to decimal</u> : divide by 100, and remove the "%" sign.

The easiest way to divide by 100 is to **move the decimal point 2 places to the left**:

From Percent		To Decimal	
75%	0.7 5 2 Places	0.75	move the decimal point **2 places to the left**, and remove the "%" sign.

FROM DECIMAL TO PERCENT

To <u>convert from decimal to percent</u> : multiply by 100, and add a "%" sign.

The easiest way to multiply by 100 is to **move the decimal point 2 places to the right**:

From Decimal		To Percent	
0.125	0.1 2.5 2 Places	12.5%	move the decimal point **2 places to the right**, and add the "%" sign.

PRACTICE

Convert Decimal to Percent

0.95 =	0.46 =	1.91 =
1.35 =	1.59 =	1.74 =
0.88 =	1.32 =	0.567 =
0.565 =	0.33 =	0.949 =
0.141 =	0.931 =	0.25 =

Convert Percent to Decimal

78.8 % =	89 % =	69 % =
142 % =	149 % =	47 % =
78.1 % =	37.2 % =	57.4 % =
11 % =	146 % =	99.5 % =
32 % =	66 % =	154 % =

NOTES

The easiest way to <u>convert a fraction to a decimal</u> is to divide the top number by the bottom number (divide the numerator by the denominator in mathematical language)

Example: Convert $^2/_5$ to a decimal

Divide 2 by 5: $2 \div 5 = 0.4$

Answer: $^2/_5 = 0.4$

Another way to convert 2/5 to a decimal is to find an equivalent fraction with a denominator of 10, 100, or 1000. Then convert the fraction to a decimal.

$$\frac{2}{5} \times \frac{2}{2} = \frac{4}{10} = 0.4$$

FROM DECIMAL TO FRACTION

Example: To convert 0.75 to a fraction

Steps	Example
1) Write the decimal as a fraction by using a denominator of 10, 100, or 1000, depending on the decimal.	$\frac{75}{100}$
2) Simplify the fraction, if possible.	$\frac{75}{100} \div \frac{25}{25} = \frac{3}{4}$
3) $0.75 = \frac{3}{4}$.	

PRACTICE

CONVERT EACH FRACTION TO A DECIMAL.

$\frac{18}{25} =$ $\frac{46}{50} =$ $\frac{21}{25} =$

$\frac{39}{25} =$ $\frac{11}{10} =$ $\frac{15}{20} =$

$\frac{3}{8} =$ $\frac{67}{50} =$ $\frac{22}{20} =$

CONVERT EACH DECIMAL TO A FRACTION.

$1.73 =$ $0.08 =$ $0.05 =$

$0.46 =$ $1.72 =$ $0.65 =$

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NOTES

The easiest way to <u>convert a fraction to a percentage</u> is to divide the top number by the bottom number. then multiply the result by 100, and add the "%" sign.

Example: Convert $^3/_8$ to a percentage

First divide 3 by 8: $3 \div 8 = 0.375$,
Then multiply by 100: $0.375 \times 100 = 37.5$
Add the "%" sign: 37.5%

Answer: $^3/_8 = 37.5\%$

FROM PERCENTAGE TO FRACTION

Example: To convert 80% to a fraction

Steps	Example
1) Write the decimal as a fraction with a denominator of 100.	$\frac{80}{100}$
2) Simplify the fraction.	$\frac{80}{100} \div \frac{20}{20} = \frac{4}{5}$
3) $80\% = \frac{4}{5}$	

PRACTICE

Convert Fraction to Percent

$\frac{1}{8} =$ 　　　　　　$\frac{34}{20} =$ 　　　　　　$\frac{17}{20} =$

$\frac{17}{20} =$ 　　　　　　$\frac{1}{10} =$ 　　　　　　$\frac{49}{25} =$

$\frac{22}{50} =$ 　　　　　　$\frac{5}{8} =$ 　　　　　　$\frac{5}{8} =$

Convert Percent to Fraction

48 % =

93 % =

87 % =

29 % =

14 % =

NOTES

Finding the Percent of a Number

Step 1: Rewrite the percent as a decimal.

Step 2: Multiply.

EXAMPLE

3% of 12

$3\% \text{ of } 12 = 0.03 \cdot 12$

$= 0.36$

PRACTICE

1a. **100% of 96**

1b. **75% of 4**

2a. **100% of 25**

2b. **100% of 15**

3a. **80% of 45**

3b. **20% of 55**

4a. **25% of 72**
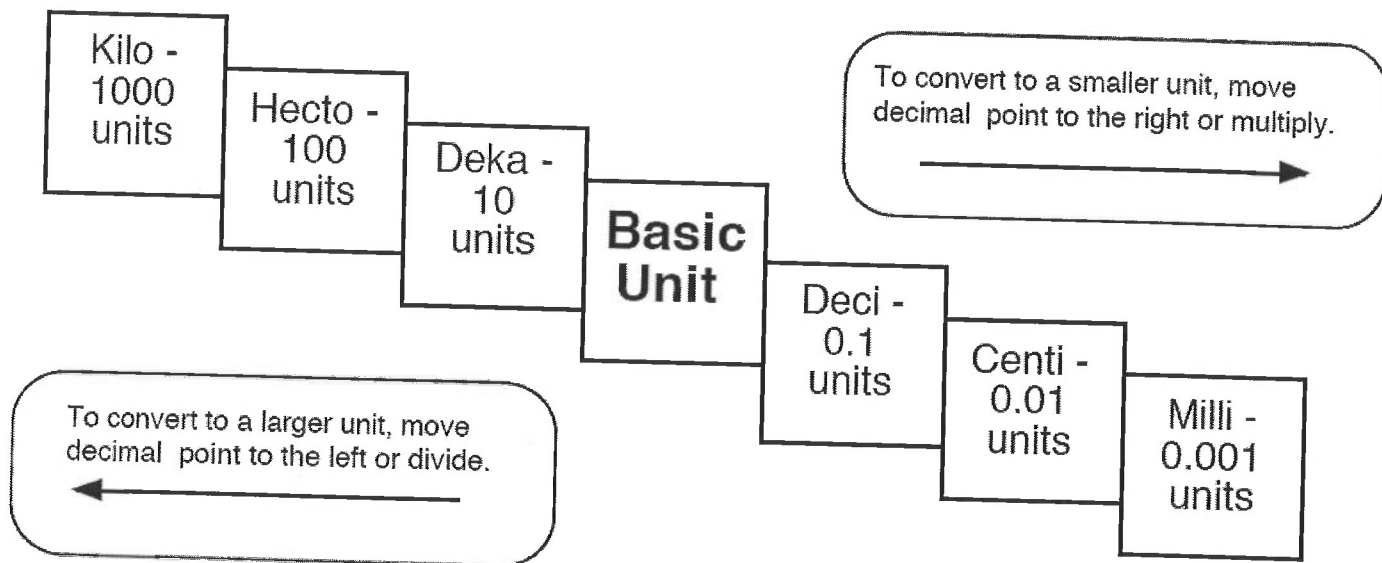
4b. **25% of 76**

5a. **40% of 95**

5b. **75% of 36**

6a. **50% of 34**

6b. **50% of 40**

NOTES

Converting within the Metric System

| Kilo - 1000 units | Hecto - 100 units | Deka - 10 units | **Basic Unit** | Deci - 0.1 units | Centi - 0.01 units | Milli - 0.001 units |

To convert to a smaller unit, move decimal point to the right or multiply. →

← To convert to a larger unit, move decimal point to the left or divide.

PRACTICE

1) 2000 mg = _____ g

2) 104 km = _____ m

3) 480 cm = _____ m

4) 5.6 kg = _____ g

5) 8 mm = _____ cm

6) 5 L = _____ mL

7) 198 g = _____ kg

8) 75 mL = _____ L

9) 50 cm = _____ m

10) 5.6 m = _____ cm

11) 16 cm = _____ mm

12) 2500 m = _____ km

13) 65 g = _____ mg

14) 6.3 cm = _____ mm

15) 120 mg = _____ g

NOTES

Converting within the Customary System of Measurement

- To convert from larger units to smaller units, MULTIPLY.

- To convert from smaller units to larger units, DIVIDE.

Larger Units	$\rightarrow$	Smaller Units

$7 \text{ ft} = 7 \times 12 = 84 \text{ in.}$

$4 \text{ mi} = 4 \times 5{,}280 = 21{,}120 \text{ ft}$

There will be a greater number of smaller units than larger units.

Smaller Units	$\rightarrow$	Larger Units

$108 \text{ in.} = 108 \div 12 = 9 \text{ ft}$

$15 \text{ ft} = 15 \div 3 = 5 \text{ yd}$

There will be fewer larger units than smaller units.

Customary Units of Length
1 mile (mi) = 5,280 feet
1 foot (ft) = 12 inches (in.)
1 yard (yd) = 3 feet

Customary Units of Capacity
1 cup (c) = 8 fluid ounces (fl oz)
1 pint (pt) = 2 cups
1 quart (qt) = 2 pints
1 gallon (gal) = 4 quarts

Units of Time	
60 seconds (s) = 1 minute (min)	7 days = 1 week
60 minutes = 1 hour (h)	52 weeks = 1 year
24 hours = 1 day	365 days = 1 year

PRACTICE

1a. **3 qt 6 oz = _____ oz**

2a. **5,280 yd = _____ mi _____ yd**

3a. **70 oz = _____ gal _____ qt _____ oz**

4a. **3 C = _____ pt _____ C**

5a. **8 yd 1 ft = _____ ft**

6a. **5 ft 6 in = _____ in**

7a. **10 qt = _____ gal _____ qt**

8a. **1,920 yd = _____ mi _____ yd**

9a. **72 oz = _____ qt _____ oz**

10a. **7 C = _____ pt _____ C**

11a. **3 qt = _____ C**

12a. **8 yd 2 ft = _____ ft**

Grade 6 and 7 Summer Reading

Summer is a time of fun and a time of rest. We also need to make sure you continue to read during the summer as this is a wonderful way to work on your reading skills. You have been assigned a book based upon your reading ability. The attached packet will make sure that you are reading with a purpose. This packet is due the first week of school and will be a test grade.

We also want to you read for pleasure so make sure you pick up at least one other book and read for fun!! Take a trip to the library often. I look forward to hearing about your reading when we return to school.

If you have any questions about this packet, please feel free to email me - yes, even during the summer, and I will try and be helpful.

Mrs. Griffin
sjgriffin@saintpatricklowell.org
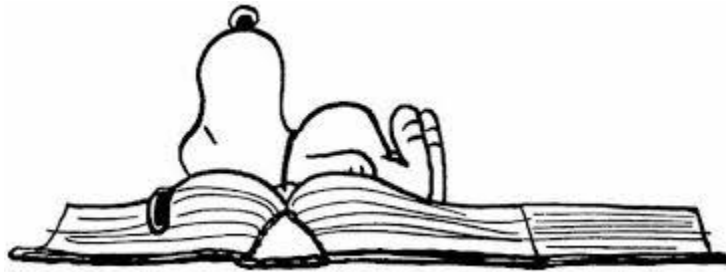
Incoming sixth grade: *City of Ember* **by Jeanne DePrau**

Incoming seventh grade: *Diary of A Young Girl* **by Ann Frank**

As you read your book choose fifteen (15) words that either you needed to look up - or you think other students in your class would need to look up. Write the definition for that word. This sheet is to be handed in with the rest of the worksheets.

Word: Definition:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Gist Statements

DIRECTIONS: After you finish a chapter in the novel, write the chapter number in the circle and write a brief summary of that chapter in the space provided. You must be brief and include only the essential information. Your summary gist statement must be no more than **2 sentences**.

Quote It

DIRECTIONS: Copy 5 significant quotes from the book. Write the chapter and page number where you found the quote and explain why you feel it is important to the story, main character, theme, conflict, etc.

Ch./Page	Quote	Significance