تجميعة أسئلة مراجعة وفق الهيكل الوزاري منهج ريفيل

الإمارات العربية المتحدة
وزارة التربية والتعليم

Al Huiteen school
Al Dhafra

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5th Grade

TERM 3 (2024-2025)

Mathematics

Math Teacher
. Alaa Elatawy

Unit 11 – Divide Fractions

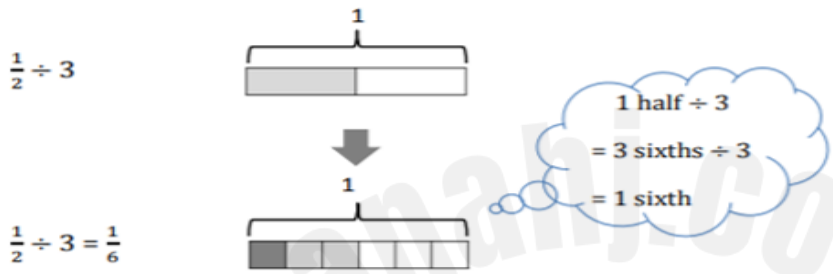
Relate Fractions to Division

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

$\frac{5}{8} = 5 \div 8$

$\frac{9}{10} = 9 \div 10$

Represent Division of Unit Fractions by Whole Numbers



Represent Division of Whole Numbers by Unit Fractions

Example: $2 \div \frac{1}{3} =$ 6

There are 3 thirds in 1 whole.

There are 6 thirds in 2 wholes.

Teacher :Alaa Elatawy

Division of Whole Numbers by Unit Fractions

$\frac{2}{1} \div \frac{1}{8}$

$\frac{2}{1} \times \frac{8}{1}$

Keep
Flip
Change

Divide Unit Fractions by NonZero Whole Numbers

$\frac{1}{5} \div 1 = \frac{1}{5} \times \frac{1}{1} = \frac{1}{5}$

Keep
Flip
Change

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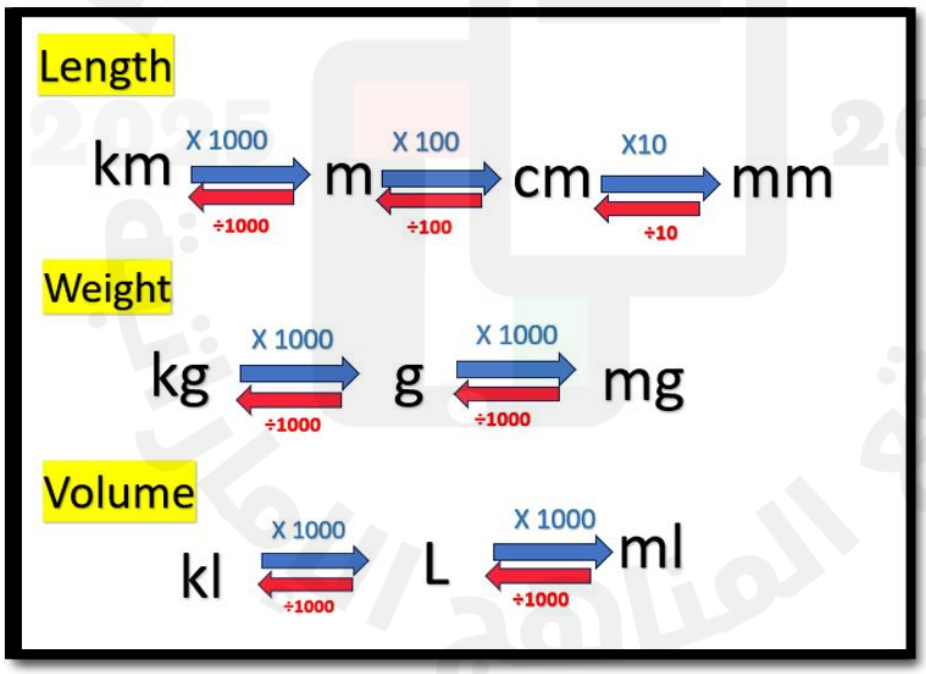
Unit 12 – Measurement and Data

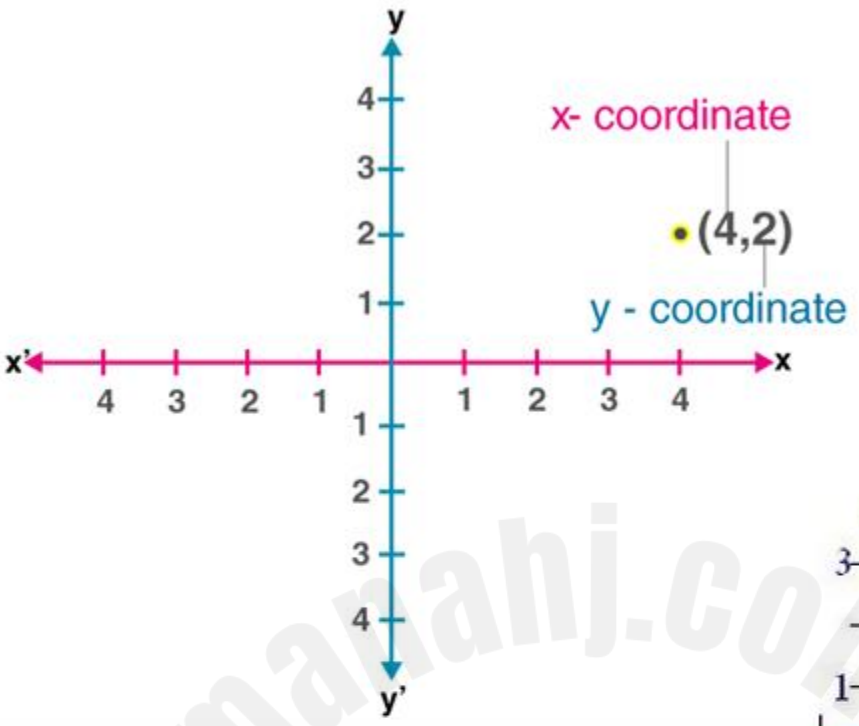
Convert Customary Unit

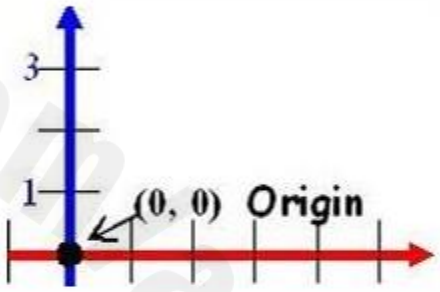
1. gallon (gal) —x4→ quart (qt) —x2→ pint (Pt) —x2→ cups —x8→ floz
2. 1 day —x24→ hours —x60→ min —x60→ second
3. ton (T) —x2000→ pound (lb) —x16→ ounce (oz)
4. year (Yr) —x12→ month (mo)
5. mile (mi) —x1760→ yard (yd) —x3→ feet (ft) —x12→ in

Convert Metric Unit



Unit 13 – Geometry





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A **coordinate plane** is formed by two real number lines that intersect at the origin. (x-axis and y-axis)

An **ordered pair** is a point in the coordinate plane represented by real numbers. The ***x-coordinate*** is the first number. The ***y-coordinate*** is the second number. Ex. (3,6)

Ordered Pair

(x, y)

x = first coordinate

y = second coordinate

(right or left, up or down)

By Side

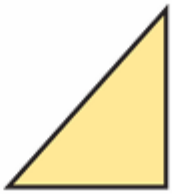
Equilateral Triangle
has three equal sides

Isoceles Triangle
has two equal sides

Scalene Triangle
has no equal sides

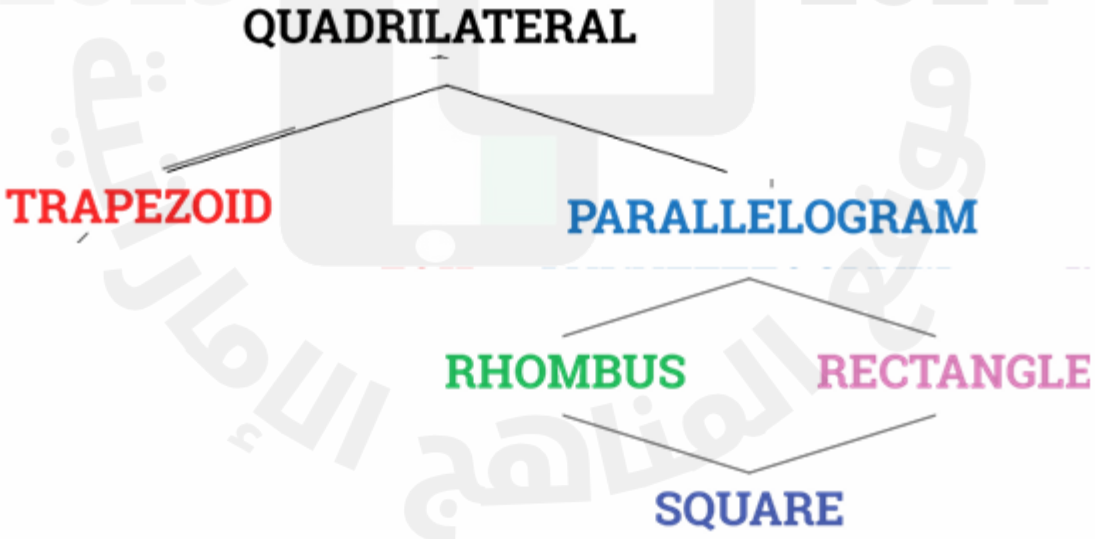
By Angle

Acute Triangle
has three angles < 90°

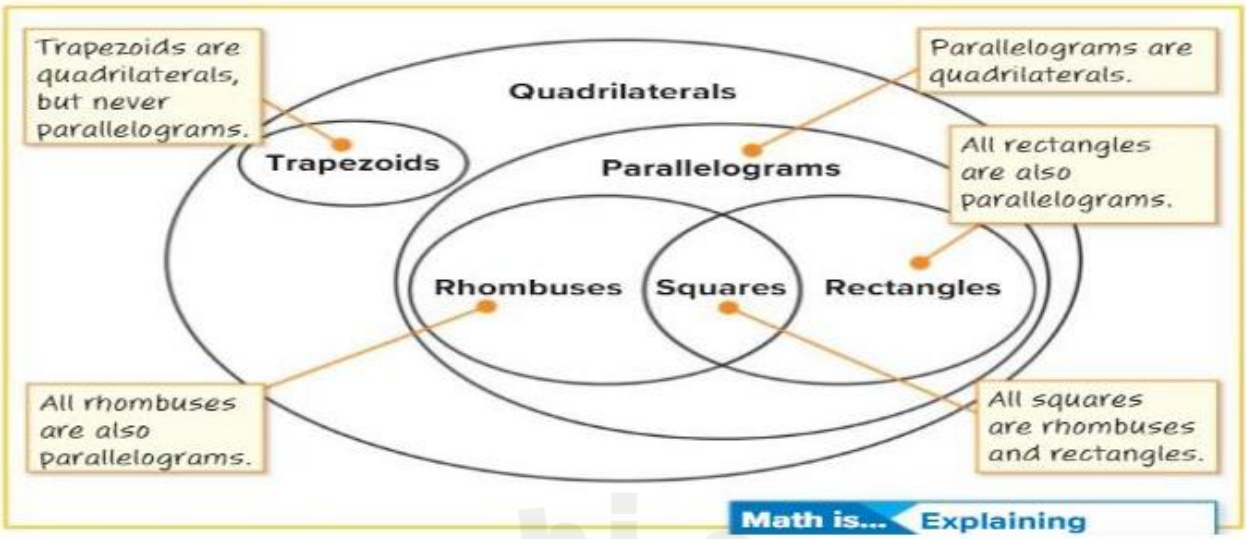


Right Triangle
has one angle = 90°

Obtuse Triangle
has one angle > 90°



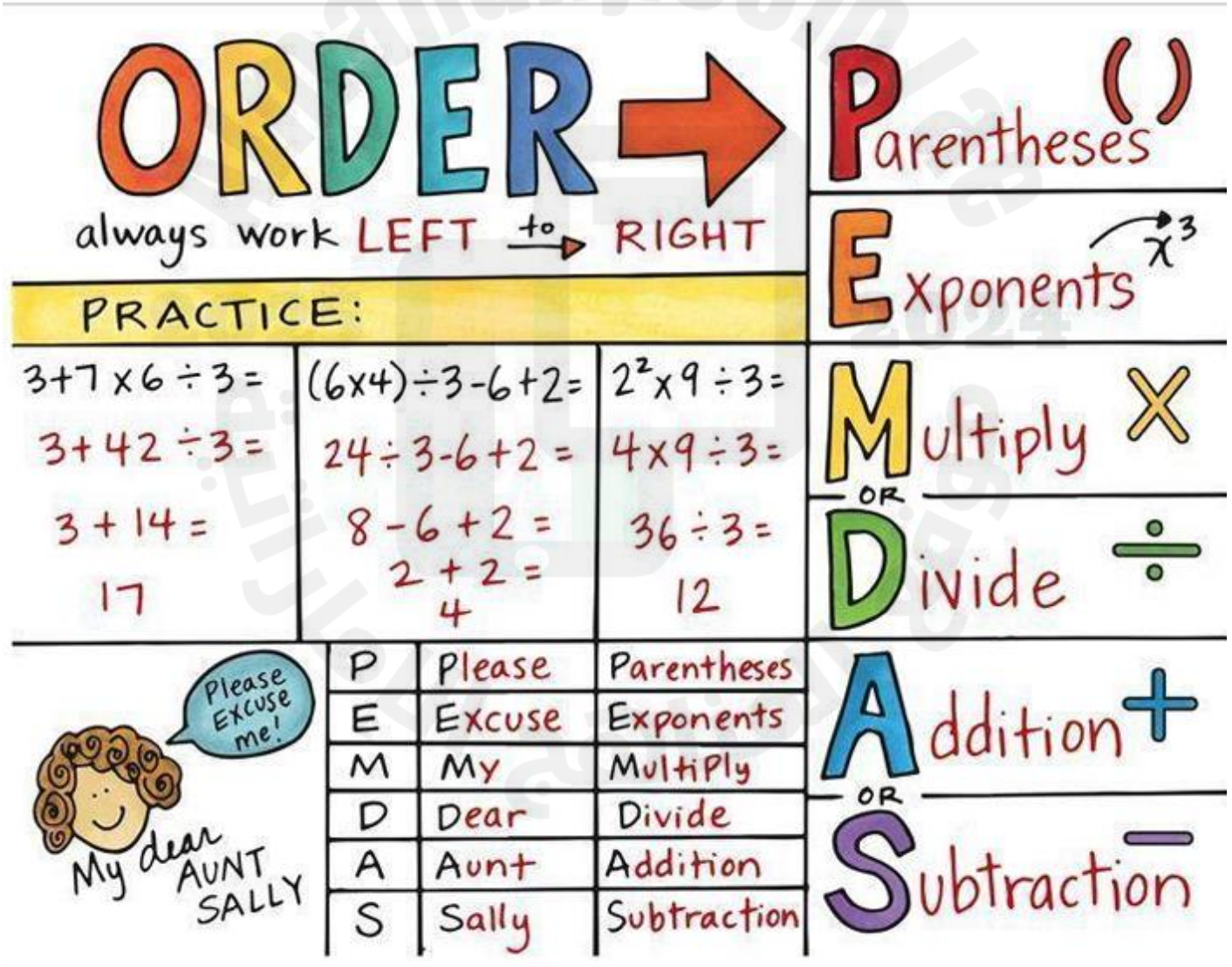
VENN Diagram



quadrilateral	example	features
square		• all sides are equal length • opposite sides are parallel
rectangle		• opposite sides are equal length • opposite sides are parallel
parallelogram		• opposite sides are equal length • opposite sides are parallel • a square, rectangle, and rhombus are parallelograms
trapezoid		• pair of opposite parallel sides
rhombus		• all sides have equal length • opposite sides are parallel • also called a diamond

Unit 14 – Algebraic Thinking

Numerical Expression	Word Expression
8 x 43 – 13	Eight times 43 minus 13.
8 x (43 – 13)	8 times the difference of 43 and 13.
12 x (5 + 25)	12 times the sum of 5 and 25.
(20 x 3) + (5 x 3)	The sum of 3 twenties and 3 fives.



Numerical Patterns

Numerical Patterns | Terms | Corresponding Terms

A numerical pattern is a sequence of numbers that follow a given rule.

The rule is add 3.

0, 3, 6, 9, 12, ...

Numerical Patterns

Numerical Patterns | Terms | Corresponding Terms

The terms in a numerical pattern are the numbers that make up the pattern.

The first term is 0, the second term is 3, the third term is 6, the fourth term is 9, the fifth term is 12, and so on.

0, 3, 6, 9, 12, ...

term 1 term 2 term 3 term 4 term 5

Numerical Patterns

Numerical Patterns | Terms | Corresponding Terms

When you have more than one pattern, you can find corresponding terms. Corresponding terms are the terms that match.

The terms 6 and 5 are corresponding terms. They are both the third term of the sequence.

0, 3, 6, 9, 12, ...

1, 3, 5, 7, 9, ...

Relate Numerical Patterns

Definition | The Rule | Corresponding | Create a table

The rule for pattern A is add 5.
The rule for pattern B is add 20.

Pattern A: 0, 5, 10, 15, 20, ...
Pattern B: 0, 20, 40, 60, 80, ...

Rule for pattern A: + 5
Rule for pattern B: + 20

Relate Numerical Patterns

Definition | The Rule | Corresponding | Create a table

You can organize numerical patterns in a table to help identify the relationship between corresponding terms.

The terms in Pattern B are 4 times as much as the corresponding terms in Pattern A.

Pattern A + 5	Pattern B + 20
0	0
5	20
10	40
15	60
20	80

Pattern A term × 4 = Pattern B term

0 × 4 = 0
5 × 4 = 20
10 × 4 = 40
15 × 4 = 60
20 × 4 = 80

Graph Numerical Patterns

Numerical Patterns | Table | Ordered Pairs | Graph

An ordered pair shows the *x*- and *y*-coordinate on a coordinate plane in the form (*x*, *y*). The number of ebooks purchased is the *x*-coordinate and dirhams is the *y*-coordinate.

E-book Download	Cost (dirhams)	Ordered Pair
0	0	(0, 0)
1	70	(1, 70)
2	140	(2, 140)
3	210	(3, 210)
4	280	(4, 280)

Part1	Type of Questions	FQR	Marks per each Question	7-9 marks
1	Represent Division of Whole Numbers by Unit Fractions	Learn + Work Together		Page:138

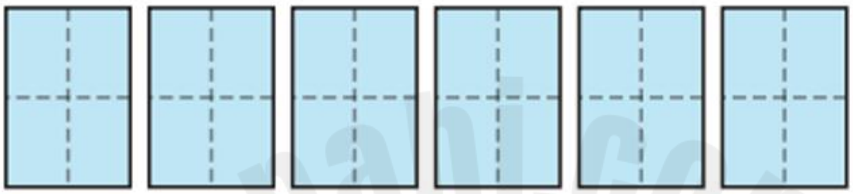
Learn

Meghan has 6 sheets of paper. She uses $\frac{1}{4}$ sheet of paper to make one card.

How many cards can Meghan make?

A division equation can represent the problem.

Partition 6 wholes into fourths.



There are 24 one-fourths in all 6 wholes.

$6 \div \frac{1}{4} = 24$.

Megan can make 24 cards.

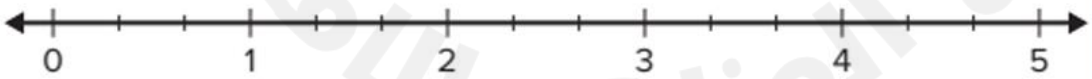
Math is... In My World

Describe other examples of when you might need to find how many fractional parts are in a whole.

A representation can help you divide a whole number by a unit fraction.

Work Together

Joey has a 5-foot board. He cuts the board into pieces that are each $\frac{1}{3}$ foot long. How many $\frac{1}{3}$-foot boards will Joey have? Use the number line to help you solve.



What is the quotient? Use a representation to solve.

1. $6 \div \frac{1}{3} =$ _____

2. $9 \div \frac{1}{4} =$ _____

3. $7 \div \frac{1}{8} =$ _____

4. $5 \div \frac{1}{5} =$ _____

5. $4 \div \frac{1}{2} =$ _____

6. $2 \div \frac{1}{9} =$ _____

7. $4 \div \frac{1}{6} =$ _____

8. $3 \div \frac{1}{10} =$ _____

9. Jamal cuts the board into pieces that are each $\frac{1}{2}$ foot long. How many pieces does he have?

1	Represent Division of Whole Numbers by Unit Fractions	(1-9)	Page:139

10. **Error Analysis** Kevin has a 5 feet length of wrapping paper. He uses a $\frac{1}{3}$ foot length of wrapping paper for each present. He writes an equation to help him determine how many presents he can wrap using all of the paper. Is Kevin correct? Explain your thinking.

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

11. Mrs. Lopez has 2 large pizzas for her class to share. Each slice is $\frac{1}{8}$ of the pizza. How many slices of pizza does Mrs. Lopez have?

12. A house painter pours the paint from this 5-gallon can into smaller cans that each hold $\frac{1}{2}$ gallon. How many small cans will he fill? Use a fraction model to justify your answer.

13. A baker has 4 pounds of flou . She divides it evenly into bags that hold $\frac{1}{3}$ pound each. Show how many bags the baker can fill using a fraction model.

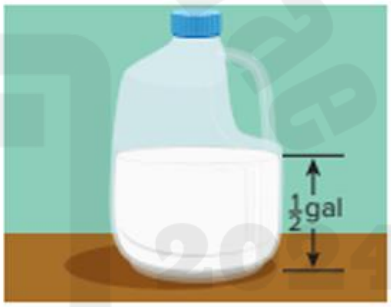
14. Extend Your Thinking Find a whole number and unit fraction whose quotient is 24.

2	Divide Unit Fractions by Non-Zero Whole Numbers	Learn + Work Together	Page:150

Learn

Ms. Myers pours an equal amount of milk in each of 6 cups.

If she pours all of the milk, how can you determine what fraction of a gallon is in each cup?



A division equation can represent the problem.

You can write the division equation as a multiplication equation.

$c = \frac{1}{2} \div 6$

$c = \frac{1}{2} \times \frac{1}{6}$

Dividing by 6 is the same as multiplying by $\frac{1}{6}$.

$c = \frac{1}{12}$

There is $\frac{1}{12}$ gallon in each of the 6 cups.

Math is... Structure

If an equation is true, why are all the equations related to it true?

Use multiplication to check the answer.

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

The calculated quotient is correct.

Division of a unit fraction by a non-zero whole number can be rewritten as multiplication by a unit fraction.

Work Together

Explain why $\frac{1}{5} \div 3 = \frac{1}{15}$.

2	Divide Unit Fractions by Non-Zero Whole Numbers	(1-9)	Page:151

Is the quotient correct or incorrect? How do you know?

1. $\frac{1}{2} \div 3 = \frac{1}{6}$

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

3. $\frac{1}{3} \div 6 = \frac{1}{9}$

4. $\frac{1}{6} \div 4 = \frac{1}{24}$

What is the quotient?

5. $\frac{1}{5} \div 5 =$ _____

6. $\frac{1}{7} \div 2 =$ _____

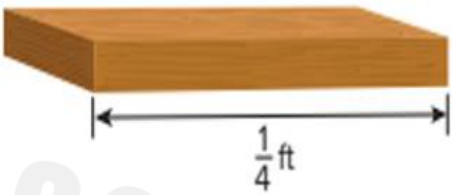
7. $\frac{1}{8} \div 10 =$ _____

8. $\frac{1}{9} \div 3 =$ _____

9. A garden has an area of $\frac{1}{10}$ acre. What fraction of an acre is each of the 4 sections?

10. Error Analysis Peter buys $\frac{1}{4}$ pound of ham. Peter says that if he makes 2 ham sandwiches, each will have $\frac{1}{2}$ pound of ham. Is Peter correct? Explain why or why not.

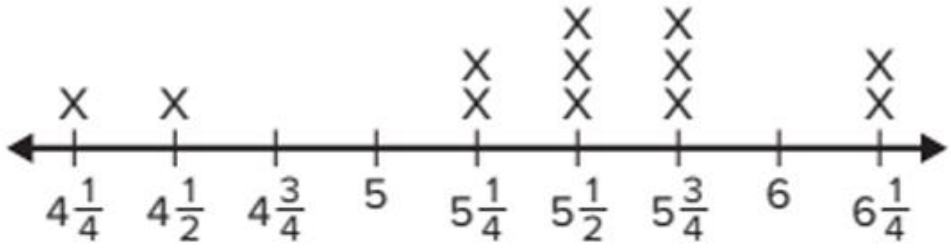
11. Theo cuts this board into 4 equal sections. What is the length of each section?



12. Sasha spends $\frac{1}{2}$ of each school day in math class, science class, and history class. If the time spent in each class is the same, what fraction of the school day does Sasha spend in math class?

13. Extend Your Thinking When a unit fraction is divided by a non-zero whole number, will the quotient always be less than the unit fraction? Explain why or why not.

This line plot shows the lengths of various mice from nose to the tip of the tail. Use the line plot to answer the questions.



Mice Length (in inches)

1. How many mice are in the data set?

2. How long is the shortest mouse?

3. How long is the longest mouse?

4. Which measurement or measurements occurred the most often?

5. Which measurement or measurements occur the least often?

6. How many mice are longer than 5 inches?

7. How many mice are shorter than 5 inches?

8. What is the difference in inches between the longest and the shortest mice?

3	a)Represent Measurement Data on a Line Plot	(9-11)	Page:182

9. Create a line plot to represent the data.

Pencil Lengths (in inches)

Pencil Lengths (in.)			
$6\frac{3}{4}$	$6\frac{1}{8}$	$6\frac{1}{2}$	$6\frac{1}{8}$
$6\frac{7}{8}$	$6\frac{3}{8}$	$6\frac{1}{8}$	$6\frac{3}{8}$

10. How did you know how to label the measurements on the line plot?

11. How did you know how many Xs to place above each measurement?

3	b) Solve Problems Involving Measurement Data on Line Plots	(1-8)	Page:185

T. Ala

The line plot shows the weights of various mice.
Use the line plot to answer the questions.

Mice Weight (in ounces)

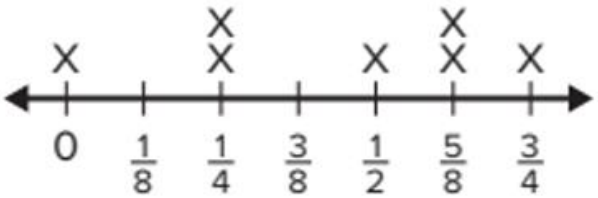
1. What is the combined weight of the 4 lightest mice?

2. What is the combined weight of the mice that weigh $\frac{3}{4}$ ounces?

3. What is the combined weight of all the mice?

4. What is the difference in weigh between the heaviest mouse and the lightest mouse?

The line plot shows the amount of rain that fell each day in a week. Use the line plot to answer the questions.



Daily Rainfall (in inches)

5. What was the total amount of rainfall in inches during the week?

6. How many days did it rain during the week?

7. On the days it rained, what is the difference between the greatest and least amount of rainfall?

8. If the same amount of rain falls the following week, what is the total amount of rainfall over two weeks?

3	b) Solve Problems Involving Measurement Data on Line Plots	(9-11)	Page:186

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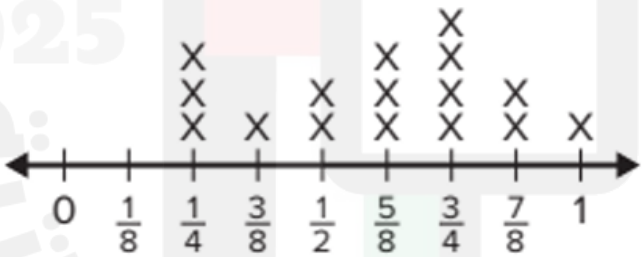
The line plot shows how much water each player drank during a basketball game. Use the line plot to answer the questions.



Water Drank (in gallons)

9. How many players drank water during the basketball game?

10. What is the difference between the greatest amount of water drank and the least amount of water drank?

11. Error Analysis Tony wants to find the total amount of water players drank during the game.

$\frac{1}{4}+\frac{3}{8}+\frac{1}{2}+\frac{5}{8}+\frac{3}{4}+\frac{7}{8}+1=4\frac{3}{8}$ gallons

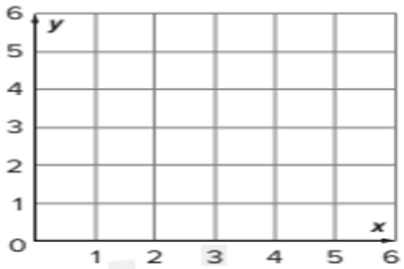
Is Tony's work correct? Explain why or why not.

4	Plot Ordered Pairs on the Coordinate Plane	(1-8)	Page:203

Plot and label the point for each place shown in the table.

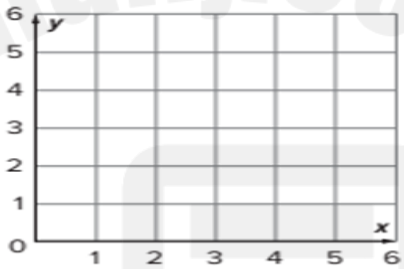
Place	Ordered Pair
Playground	(4, 6)
Post Office	(1, 2)
Fire Station	(5, 3)
Jill's House	(2, 4)

1. Playground
2. Post Offi
3. Fire Station
4. Jill's House



Plot and label the point for each ordered pair.

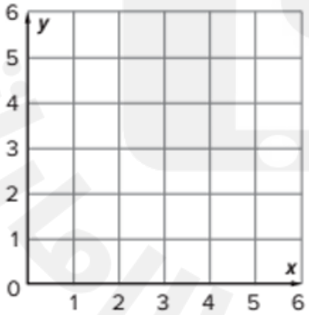
5. $M(3, 2)$
6. $N(4, 3)$
7. $P(5, 4)$
8. $Q(1, 5)$



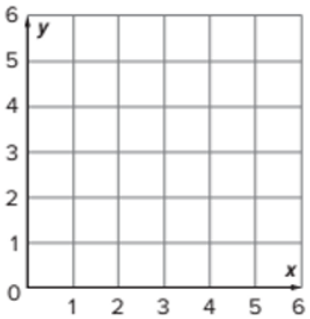
4	Plot Ordered Pairs on the Coordinate Plane	(9-13)	Page:204

Plot and label the point for each ordered pair.

9. $R(0, 0)$
10. $S(4, 0)$
11. $T(0, 6)$
12. $U(3, 5)$



13. **Extend Your Thinking** Plot the points (1, 3), (1, 6), (5, 6), and (5, 3). Draw a line to connect the points in the order in which you plotted them. What is the length and width of the shape?



Learn

Pattern A starts at 0 and adds 1 to each term.

Pattern B starts at 0 and adds 5 to each term.

How can you determine a relationship between corresponding terms of these numerical patterns?

You can use a table to identify a relationship between the patterns.

Pattern A +1	Pattern B +5
0	0
1	5
2	10
3	15
4	20

Each term in Pattern B is 5 times as much as its corresponding term in Pattern A. You can use this relationship to determine unknown terms.

Math is... Structure

How are the terms in Pattern A related to their corresponding terms in Pattern B?

If 10 is a term in Pattern A, what is its corresponding term in Pattern B?

$10 \times 5 = t$

$t = 50$

If 70 is a term in Pattern B, what is its corresponding term in Pattern A?

$c \times 5 = 70$

$c = 14$

You can organize numerical patterns in a table to help you identify and describe relationships between corresponding terms.

Work Together

How can you determine a relationship between corresponding terms of these two numerical patterns?

Pattern A starts at 0 and adds 3 to each term.

Pattern B starts at 0 and adds 6 to each term.

Describe a relationship between corresponding terms in Patterns A and B.

1. Pattern A starts at 0 and adds 4 to each term.
   Pattern B starts at 0 and adds 2 to each term.

2. Pattern A starts at 0 and adds 3 to each term.
   Pattern B starts at 0 and adds 9 to each term.

3. Pattern A starts at 0 and adds 20 to each term.
   Pattern B starts at 0 and adds 5 to each term.

Use the table to answer Exercises 4–6.

4. Fill in the unknown terms in the table.

5. What is a relationship between the corresponding terms in Patterns A and B?

Pattern A +2	Pattern B +8
0	
2	
	16
8	

6. If a term in Pattern A is 20, what will be its corresponding term in Pattern B?

7. Pattern A starts at 0 and adds 1 to each term. Pattern B starts at 0 and adds 6 to each term. If 5 is a term in Pattern A, what is its corresponding term in Pattern B?

8. Pattern A starts at 0 and adds 4 to each term. Pattern B starts at 0 and adds 8 to each term. If 24 is a term in Pattern A, what is its corresponding term in Pattern B?

9. Pattern A starts at 0 and adds 3 to each term. Pattern B starts at 0 and adds 12 to each term. If 72 is a term in Pattern B, what is its corresponding term in Pattern A?

10. STEM Connection Saffron is baking bread. She wrote these numerical patterns to record the amount of water and flour needed
Water (in cups): 3, 4, 5, 6, ...
Flour (in cups): 6, 8, 10, 12, ...
How many cups of water is needed when using 48 cups of flour

11. Extend Your Thinking A relationship between terms is that a term in Pattern A is $\frac{5}{4}$ times as much as its corresponding term in Pattern B. What could be the rules for each numerical pattern?

Part2	Type of Questions	MCQ	Marks per each Question	4 marks
6	Relate Fractions to Division	(1-9)		Page:131

1. Marie equally divides 6 bags of soil into these flowerpots. How many bags of soil are in each pot?

Complete the equation.

2. ____ ÷ ____ = $\frac{5}{9}$

3. ____ ÷ ____ = $\frac{13}{4}$

4. $3 \div 8 =$ ____

5. $7 \div 9 =$ ____

6. ____ $\times 7 = 7 \div 3$

7. $\frac{1}{4} \times 5 = 5 \div$ ____

8. A farmer pours 3 pounds of chicken feed equally into 4 bags. What is the weight of the chicken feed in each bag?

A. $\frac{3}{4}$ pound

B. $1\frac{3}{4}$ pounds

C. $\frac{4}{3}$ pounds

D. $1\frac{1}{4}$ pounds

9. An artist divides 4 pounds of clay equally into 3 containers. What is the weight of the clay in each container? Circle all correct answers.

A. $1\frac{1}{4}$ pounds

B. $1\frac{1}{3}$ pounds

C. $\frac{3}{4}$ pound

D. $\frac{4}{3}$ pounds

6	Relate Fractions to Division	(10-13)	Page:132

10. Aki pours the same amount of aquarium pebbles from this bag into each of 3 aquariums. What is the weight of the pebbles in each aquarium?

11. What is the unknown divisor? Explain how you know.

$2 \div \_\_\_\_ = \frac{2}{3}$

12. **Error Analysis** Spencer divides 6 pounds of food from the food drive into 3 boxes. He says each box has $\frac{3}{6}$ pounds of food. Is he right? How do you know?

13. **Extend Your Thinking** Write a word problem involving division in which the quotient is $\frac{8}{5}$.

7	Solve Problems Involving Division	(1-7)	Page:135

Solve each problem. If there is a remainder, decide how to represent and interpret the remainder.

1. Grace walked the number of miles shown over the course of 7 days. She walked the same number of miles each day. How many miles did she walk each day?

2. There were 210 balloons at a fair. Each of the 50 children that attended the fair got the same number of balloons. How many balloons did each child get?

3. Dawn made 50 bracelets. She gave each of her 12 friends the same number of bracelets. How many bracelets did Dawn give to each of her friends?

Would you write the quotient for the problem with a remainder or as a mixed number?

4. Equal amounts of juice are poured into different glasses
   - **A.** remainder
   - **B.** mixed number

5. The same number of books must be put on each shelf.
   - **A.** remainder
   - **B.** mixed number

6. A dog is fed the same amount of food every day.
   - **A.** remainder
   - **B.** mixed number

7. Someone gives out the same number of flowers to each of 5 friends.
   - **A.** remainder
   - **B.** mixed number

7	Solve Problems Involving Division	(8-12)	Page:136

Solve each problem. If there is a remainder, decide how to represent and interpret the remainder.

8. A water cooler holds 80 cups of water. If 30 people each get an equal amount of water, how many cups of water does each person get?

9. A baker has this bag of flou . He puts equal amounts of flour in 4 canisters. How many pounds of flour are in each canister?

10. Ryan has 320 pencils. He gives an equal number of pencils to each of 15 friends. How many pencils does he give each friend?

11. Rose has a piece of ribbon that is 150 inches long. She is cutting the ribbon into 20 equal pieces. How long will each piece be?

12. **Extend Your Thinking** Drew has 169 toy cars that he is organizing into boxes. Each box can hold 30 cars. How many boxes does he need?

What is the quotient?

1. $3 \div \frac{1}{5} =$ _____
2. $6 \div \frac{1}{3} =$ _____
3. $4 \div \frac{1}{4} =$ _____
4. $7 \div \frac{1}{2} =$ _____
5. $12 \div \frac{1}{3} =$ _____
6. $9 \div \frac{1}{5} =$ _____
7. $6 \div \frac{1}{6} =$ _____
8. $10 \div \frac{1}{10} =$ _____
9. $8 \div \frac{1}{7} =$ _____

10. Keri is making trail mix that contains $\frac{1}{3}$ cup of sunflowe seeds per serving. How many servings can she make with this bag?

11. A clock chimes every $\frac{1}{4}$ hour. How many times will the clock chime in 6 hours?

12. Mia hiked 4 miles. There were trail markers every $\frac{1}{10}$ mile. How many trail markers did Mia see during her hike?

13. **STEM Connection** Poppy is visiting a park that is 15 acres. The park is divided into sections that are each $\frac{1}{3}$ acre. How many sections does the park have?

14. Jaxon has 10 gallons of punch. He pours the punch into pitchers that each hold $\frac{1}{2}$ gallon. How many pitchers does Jaxon use?

15. **Extend Your Thinking** When a whole number is divided by a fraction that is less than 1, will the quotient always be greater than the whole number? Explain why or why not.

What is the quotient?

1. $3 \div \frac{1}{5} =$ _____
2. $6 \div \frac{1}{3} =$ _____
3. $4 \div \frac{1}{4} =$ _____
4. $7 \div \frac{1}{2} =$ _____
5. $12 \div \frac{1}{3} =$ _____
6. $9 \div \frac{1}{5} =$ _____
7. $6 \div \frac{1}{6} =$ _____
8. $10 \div \frac{1}{10} =$ _____
9. $8 \div \frac{1}{7} =$ _____

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15. **Extend Your Thinking** When a whole number is divided by a fraction that is less than 1, will the quotient always be greater than the whole number? Explain why or why not.

9	Represent Division of Unit Fractions by Non-Zero Whole Numbers	(1-7)	Page:147

What is the quotient? Use a representation to solve.

1. $\frac{1}{3} \div 4 =$ _____

   A. $\frac{1}{12}$
   B. $\frac{4}{3}$
   C. $\frac{1}{16}$
   D. $\frac{1}{7}$

2. $\frac{1}{2} \div 9 =$ _____

   A. $\frac{1}{11}$
   B. $\frac{9}{2}$
   C. $\frac{1}{18}$
   D. $\frac{1}{20}$

3. $\frac{1}{8} \div 3 =$ _____

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

5. $\frac{1}{5} \div 5 =$ _____

6. $\frac{1}{3} \div 2 =$ _____

7. Juanita shares the mixed nuts equally among herself and 3 friends. What fraction of a pound of nuts does each person receive?

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9	Represent Division of Unit Fractions by Non-Zero Whole Numbers	(8-11)	Page:148

8. Raymond has $\frac{1}{3}$ gallon of water. He shares the water equally among his 3 hamsters. How much water will each hamster get?

9. A baker divides $\frac{1}{2}$ pound of wheat flour equally for 3 loaves of bread. What fraction of a pound is in each loaf?

10. **STEM Connection** Antonio is trying to determine the speed of his robot before his next competition. He measures that the robot moves $\frac{1}{2}$ foot in 5 seconds. How far does his robot move each second?

11. **Extend Your Thinking** How is dividing unit fractions by whole numbers similar to dividing whole numbers by unit fractions? How is it different?

10	Convert Customary Units	(1-8)	Page:169

Which operation will you use for the conversion? Explain your reasoning.

1. cups to fluid ounce

2. hours to days

Complete the conversion.

3. 36 in. = _____ ft

4. 2 T = _____ lb

5. 16 pt = _____ gal

6. 3 yr = _____ mo

7. 48 oz = _____ lb

8. 4 hr = _____ min

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10	Convert Customary Units	(9,12)	Page:190

9. What operation should you use to convert seconds to minutes? Explain your answer. (Lesson 12-1)

12. It is recommended that a person sleep 8 hours every night. How many minutes does this person sleep in a year? (Lesson 12-1)

A. $48\frac{2}{3}$ minutes

B. 2,920 minutes

C. 175,200 minutes

D. 10,512,000 minutes

Which operation should you use for the conversion? Explain your answer.

1. milligrams to grams

2. meters to centimeters

Complete the conversion.

3. 3 L = _____ mL

4. 100 mL = _____ L

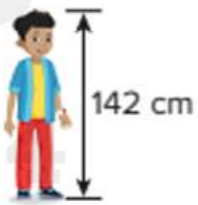
5. 500 kg = _____ g

6. 6 km = _____ m

7. 70 mg = _____ g

8. 800 kL = _____ L

9. Andrew's height is given in centimeters. What is Andrew's height in meters?



10. **Error Analysis** A cooler contains 50 liters of water. Emily calculated to determine how many milliliters of water are in the cooler. Check Emily's work. Did she make any mistakes? If so, how could she correct her work?

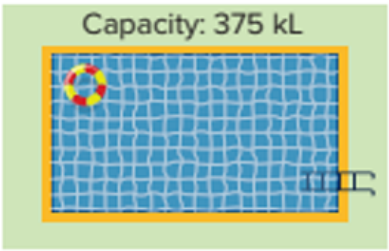
50 x 100 = 5,000

There are 5,000 milliliters of water.

11	Convert Metric Units	(11-14)	Page:174

11. The maximum mass an elevator can hold is 450 kilograms. What is the maximum mass in grams?

12. How many liters of water are in the pool?



13. Ryan has a sheet of paper that is 0.75 meter long. What is the length in centimeters?

14. Ada's backpack has a mass of 9,080 grams. What is the mass in kilograms?

15. Extend Your Thinking Explain how you can determine how many millimeters are in a kilometer.

12	Solve Multi-Step Problems Involving Measurement Units	(1-6)	Page:177

1. Adrian has a roll of wrapping paper that is 3 yards long. He uses $\frac{1}{3}$ of the wrapping paper to wrap a present. What is the length, in feet, of the paper left on the roll?

A. 1 ft

B. 3 ft

C. 6 ft

2. Ruby's backpack has a mass of 4 kilograms. She removes a book that has a mass of 120 grams. What is the mass of Ruby's backpack after she removes the book?

A. 2.8 kg

B. 3.88 kg

C. 38.8 kg

3. Amy's family has 2 gallons of milk in the refrigerator. At dinner, her family drinks $\frac{3}{8}$ of the milk in the refrigerator. How many cups of milk are left?

4. A track at the school is 400 meters long. Jackson walks around the track $3\frac{1}{2}$ times. How many kilometers did Jackson walk?

5. **STEM Connection** Finn knows that a cubic yard of concrete weighs about 4,050 pounds. A cement truck can hold 10 cubic yards of concrete. How many tons of concrete can the truck hold?

6. Robin is selling lemonade. She makes 3 liters of lemonade and sells glasses of 250 milliliters of lemonade each. In the first hou , she sells 6 glasses of lemonade. How many liters does she have left?

7. Brian is walking to his friend's house that is 2.6 kilometers away. He stops when he is $\frac{7}{8}$ of the way there. How many meters does he still have to walk?

8. Nell is aiming to drink the amount of water shown per day. By 3 p.m., she is $\frac{3}{4}$ of the way to her goal. How many more fl id ounces does she need to drink to reach her goal?

8 cups per day

12	Solve Multi-Step Problems Involving Measurement Units	(7-11)	Page:178

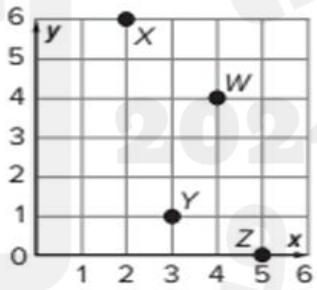
9. Tyler wants to send his cousin 5 books that are each 1,500 grams. He has a box that can hold up to 6 kilograms. Will Tyler be able to use the box he has? Explain.

10. Gina is growing a houseplant. When she measures it at the beginning of the month, it is 3 feet tall. When she measures it at the end of the month, it is $1\frac{1}{4}$ the size it was at the beginning of the month. How many inches did the houseplant grow?

11. Extend Your Thinking Christa has 3 gallons of water. Jaylen has 36 pints of water. Who has more water? Explain your reasoning.

13	Understand the Coordinate Plane	(1-5)	Page:199

1. What ordered pair describes point *W*?



2. What ordered pair describes point *X*?

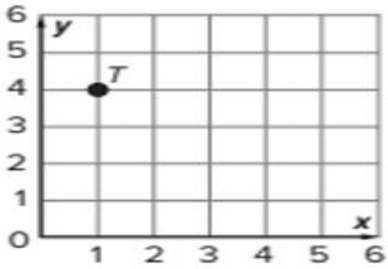
3. What ordered pair describes point *Y*?

4. What ordered pair describes point *Z*?

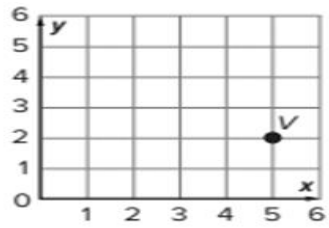
5. What ordered pair describes the origin?

13	Understand the Coordinate Plane	(10-12)	Page:224

10. What ordered pair represents point T? (Lesson 13-1)



11. What ordered pair represents point V? (Lesson 13-1)



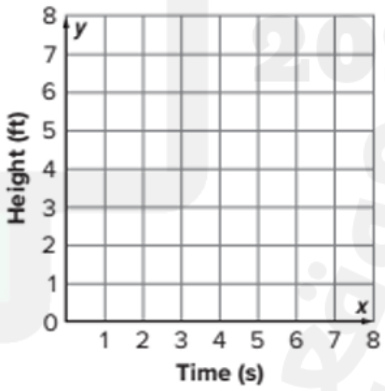
12. What ordered pair represents the origin? (Lesson 13-1)

14	Represent Problems on a Coordinate Plane	((1-6)	Page:207

1. The table shows the time it took for a fifth-grade student to go down the slid at a park and their height from the ground while going down the slide. Write the time and corresponding heights as ordered pairs.

Time (seconds)	Height (feet)
0	7
1	5
2	4
3	3
4	2
5	1

2. Plot and connect the points on a coordinate plane.



3. How tall is the slide?

4. How long does it take for the student to go down the slide?

5. What happens between 0 seconds and 1 second?

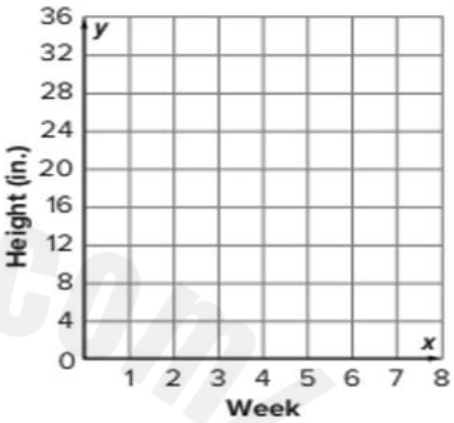
6. Where is the student after 5 seconds?

14	Represent Problems on a Coordinate Plane	(7-12)	Page:208

7. STEM Connection Poppy measures the height of a plant over several weeks and records it in the table. The plant is 14 inches tall before she begins recording. Write the weeks and corresponding heights as ordered pairs.

Week	Height (inches)
1	16
2	20
3	22
4	22
5	28
6	32

8. Plot and connect the points on the coordinate plane.



9. How much does the plant grow between Weeks 1 and 2?

10. What happens between Weeks 3 and 4?

11. How much does the plant grow between before Poppy begins recording and Week 6?

12. Extend Your Thinking What are some real-world situations you could interpret from points represented on a coordinate plane?

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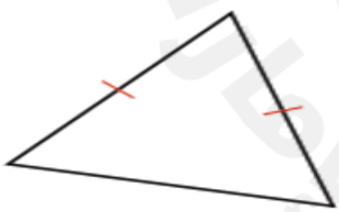
15	Classify Triangles by Properties	(1-8)	Page:211

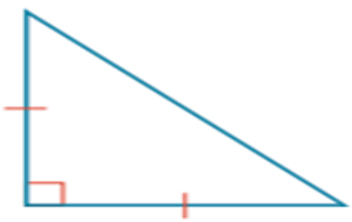
Classify each triangle by using their properties.

1.



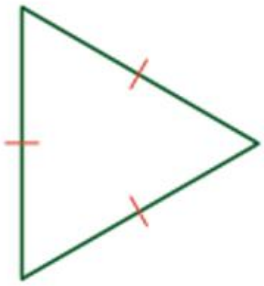
2.

3.

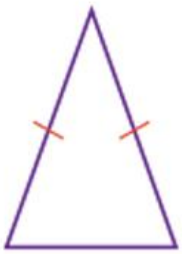


4.

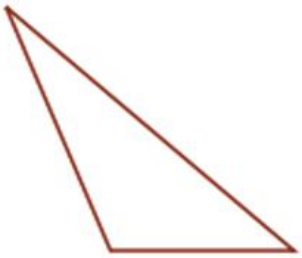
5.



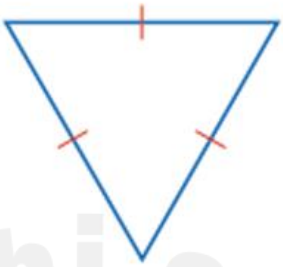
6.



7.



8.



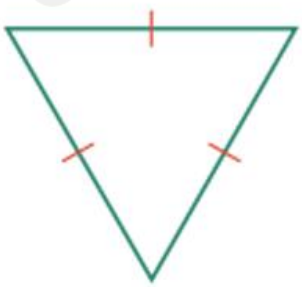
9. What is a property of all triangles?

10. What is a property of scalene triangles?

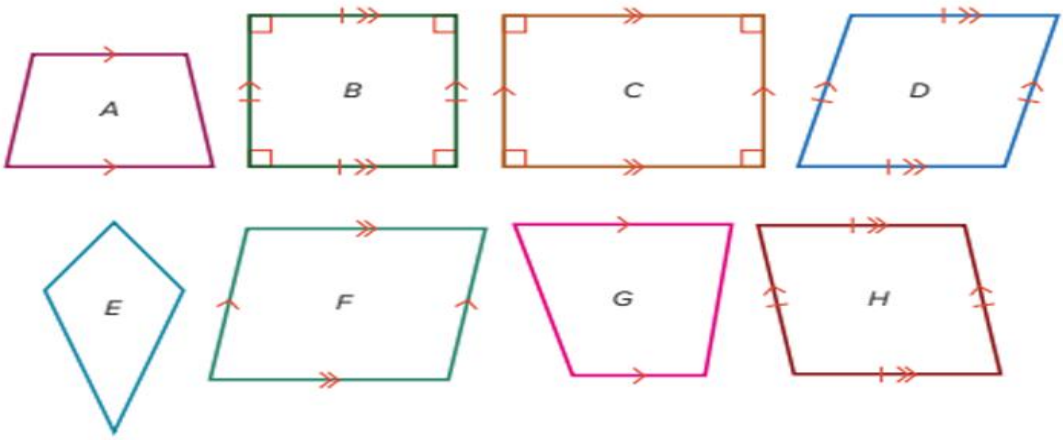
11. What is a property of isosceles triangles?

12. What is a property of equilateral triangles?

13. **Error Analysis** Tina categorizes this triangle as an equilateral triangle and says it cannot be categorized as an isosceles triangle. How can you help Tina correct her thinking?



Use the figures for Exercises 1–8. Identify the figures that could be classified into each subcategory.



1. quadrilaterals
2. trapezoids
3. parallelograms
4. rectangles
5. rhombuses
6. squares
7. How did you know how to classify each shape? Explain.
8. Did you classify any shapes into more than one category? If so, explain why.

9. **STEM Connection** Hanna is helping cut some sheets of metal. She needs to cut them so that they have 4 sides with two pairs of parallel sides. Some need to have 4 right angles and some do not. How can she classify the sheets of metal?

10. Which quadrilaterals always have 4 right angles?
11. Which quadrilaterals always have exactly 1 pair of parallel sides?
12. Which quadrilaterals always have 4 sides of equal length?
13. **Extend Your Thinking** Why can a rectangle also be called a parallelogram?

Learn

The school secretary will order 9 boxes of highlighters.

How can you show the number of yellow and pink highlighters that will be in the order?

The **numerical expression** 9×6 shows the number of yellow highlighters that will be in the order.

9×6

- 9: Boxes ordered
- 6: Yellow highlighters in each box

The numerical expression 9×3 shows the number of pink highlighters that will be in the order.

9×3

- 9: Boxes ordered
- 3: Pink highlighters in each box

This numerical expression shows the number of yellow and pink highlighters that will be in the order.

$$(9 \times 6) + (9 \times 3)$$

Math is... Precision

How is an equation similar to an expression? How is it different?

You can use numbers—operation symbols, such as $+$, $-$, $\times$, and $\div$—and grouping symbols, such as parentheses, to write numerical expressions.

Work Together

What numerical expressions represent the description?
Add 35 and 72. Then multiply by 12.

What numerical expression represents the description?

1. Divide 40 by 5. Then, subtract 2.

2. Multiply 4 and 8. Then, add 7.

3. Add $2\frac{1}{2}$ and $4\frac{2}{3}$. Then, subtract $\frac{1}{8}$.

4. Add 4.8 and 5.6. Then, subtract the sum from 16.9.

5. Subtract $4\frac{1}{4}$ from $10\frac{2}{5}$. Then, divide by 3.

6. Subtract 8 from 32. Then, divide 48 by the differenc .

7. Add 6.7 and 8.25. Then, multiply by 11.2.

8. Divide 24 by 6. Multiply 5 and 7. Then, add the quotient and the product.

9. **Error Analysis** Christine is planting 48 marigolds. She will plant 12 of the flowers in pots and the rest in rows of 4 plants each. She wrote this numerical expression to represent the number of plants in each row.

   $48 - (12 \div 4)$

   How do you respond to Christine?

18	Interpret Numerical Expressions	(1-8)	Page:237

Write the description for each numerical expression.

1. $(9 \times 18) - 5$

2. $9 \times (18 - 5)$

3. $80 \div (20 \times 4)$

4. $(80 \div 20) \times 4$

Compare the expressions using >, <, or =. Explain your reasoning.

5. $120 \div 12 \bigcirc (120 \div 12) - 9$

6. $50.5 \times 7.2 \bigcirc (50.5 - 4.8) \times 7.2$

7. $5\frac{3}{4} \times (2\frac{1}{8} + 3\frac{1}{2}) \bigcirc (5\frac{3}{4} \times 2\frac{1}{8}) + (5\frac{3}{4} \times 3\frac{1}{2})$

8. A store ordered 4,500 T-shirts and 4,500 sunglasses. Without doing any calculations, which costs more? Explain your reasoning.

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18	Interpret Numerical Expressions	(9-15)	Page:238

Determine whether Expression A is 5 times as much as Expression B. Place a checkmark in the *Yes* or *No* column.

	Expression A	Expression B	Yes	No
9.	$5 \times (1\frac{1}{4} \times 4\frac{5}{8})$	$1\frac{1}{4} \times 4\frac{5}{8}$		
10.	$(5 \times 4.39) + (5 \times 8.99)$	$4.39 + 8.99$		
11.	$(65 \times 5) \times 2$	$(65 \times 2) \times 5$		
12.	$(3{,}492 - 2{,}482) \times 5$	$3{,}492 - 2{,}482$		
13.	$(895 + 345) \div 5$	$895 + 345$		
14.	$6.71 \times (3.28 \times 5.16)$	6.71×3.28		

15. **Extend Your Thinking** Write a word problem that could be represented by each numerical expression:

$8 \times (4 + 2)$ $(8 \times 4) + 2$

Explain why the way the expressions are grouped impacts what happens in the word problem.

Which operation will you perform first to evaluate the expression? Explain your reasoning.

1. $25 - 5 \times (4 - 3)$

2. $37 + 8 \div 2 - 5$

3. $\frac{3}{4} \times (2\frac{1}{2} + 6\frac{1}{4})$

4. $100 \times 4 + 6 - 10$

What is the solution? Show your work.

5. $3 + 7 \times 2 =$ ____

6. $(3 + 7) \times 2 =$ ____

7. $56 \div 8 - 3 + 2 \times 5 =$ ____

8. $56 \div (8 - 3 + 2) \times 5 =$ ____

9. $2\frac{3}{8} + 1\frac{1}{4} \times 6\frac{3}{4} - \frac{1}{2} =$ ____

10. $5.8 \times (6.75 + 3.25) \div 2 =$ ____

19	Evaluate Numerical Expressions	(11-14)	Page:242

11. Which numerical expression is equal to 8?

A. $24 \div 6 \times 4 + 7$

B. $(24 \div 6) \times 4 + 7$

C. $24 \div (6 \times 4) + 7$

D. $24 \div 6 \times (4 + 7)$

12. Which numerical expression is equal to 1?

A. $96 \div 12 \times 4 \div 2$

B. $96 \div (12 \times 4) \div 2$

C. $96 \div (12 \times 4 \div 2)$

D. $96 \div 12 \times (4 \div 2)$

13. Error Analysis Brenna evaluated this expression. How can you help Brenna correct her thinking?

$36 \div 2 \times 9 \div 3 = \frac{2}{3}$

14. Extend Your Thinking Evaluate the expression. Then, explain how the use of grouping symbols could change the expression and how you evaluate it.

$6 \div 2 + 9 \div 3$

19	Evaluate Numerical Expressions	(11,16,17)	Page:258

11. What operation is performed first

(Lesson 14-3)

$8 + 16 \div 4 - 2$

16. What operation is performed first

(Lesson 14-3)

$12 \times (4 + 6) \div 6$

17. What is the value of the expression?

(Lesson 14-3)

$5 \times 25 - 18 \times 2$

Use the information given for Exercises 1–8.

Quentin and Tyler are running laps on the school track. Each time they complete a lap, they do jumping jacks.

They both do 0 jumping jacks after the first la .

Each lap, Quentin adds 1 jumping jack to the number of jumping jacks he did after the lap before.

Each lap, Tyler adds 4 jumping jacks to the number of jumping jacks he did after the lap before.

1. What is the rule for Quentin's numerical pattern?

2. What is the rule for Tyler's numerical pattern?

3. Write the first 5 terms of Quenti 's numerical pattern.

4. Write the first 5 terms of yler's numerical pattern.

5. When Quentin does 4 jumping jacks after a lap, how many jumping jacks will Tyler do after that same lap?

6. What is a relationship between corresponding terms in the two numerical patterns?

7. How many jumping jacks will Tyler do after the lap when Quentin does 8 jumping jacks?

8. How many jumping jacks will Quentin do after the lap when Tyler does 40 jumping jacks?

20	Numerical Patterns	(9-12)	Page:248

Use Numerical Patterns A and B for Exercises 9–12.

Numerical Pattern A: 0, 2, 4, 6, 8, 10, 12

Numerical Pattern B: 0, 6, 12, 18, 24, 30, 36

9. What is the rule for Pattern A?

10. What is the rule for Pattern B?

11. What is a relationship between the corresponding terms in the two numerical patterns?

12. When the number in Pattern A is 28, what will be the number in Pattern B?

13. Extend Your Thinking Write two numerical patterns where a relationship between the corresponding terms is to multiply by 6. Start at 0 and write the first five terms for each numerica pattern and the rule for each numerical pattern.

20	Numerical Patterns	18	Page:258

18. Jared and Robert are playing different video games. Jared passes 2 levels each time he plays. Robert passes 3 levels each time he plays. When Jared passes 8 levels, how many levels will Robert have passed playing the same number of times?

(Lesson 14-4)

20	Numerical Patterns	25	Page:259

25. Pattern A starts at 0 and adds 4. Pattern B starts at 0 and adds 8. What is the term for Pattern B when Pattern A's term is 24?

(Lesson 14-4)