

**Unit 6.1, Lesson 1: Practice Problems**

Name \_\_\_\_\_

**Warm-Up**Select **all** the numbers that are equivalent to 12.

$4 \cdot 3$

$2 + 6$

$24 \cdot \frac{1}{2}$

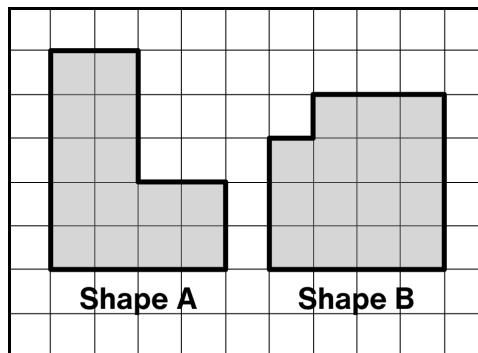
$24 \cdot 2$

$4 + 4 \cdot 2$

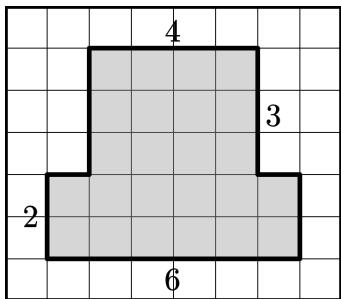
**Practice**

1. Which shape has a greater area?

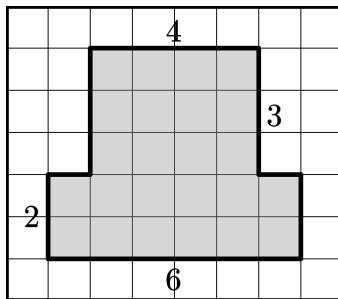
Show or explain how you know.



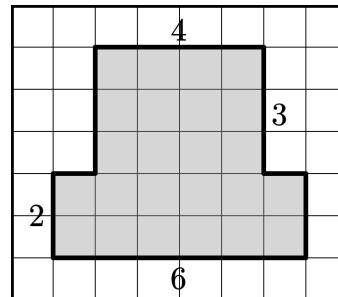
- 2.1 Determine the area of this shape.
- 
- Write your answer in square units.



- 2.2 Describe or show another way to determine the area of this shape.

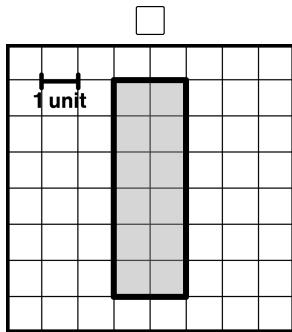
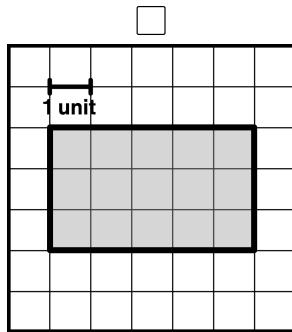
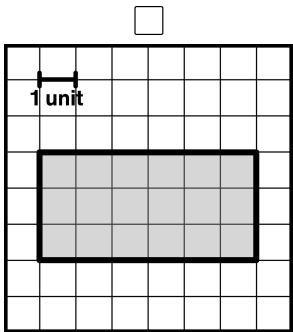
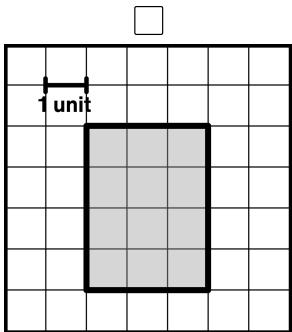


- 2.3 Describe or show how you could change this shape so it has an area of 26 square units.



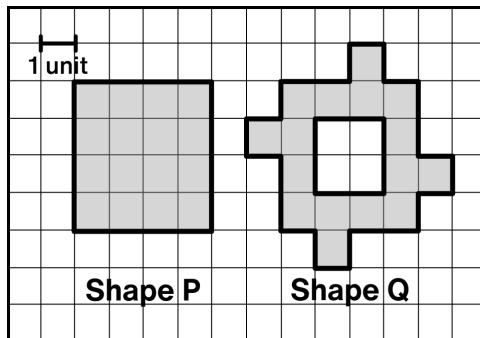
## Warm-Up

Select all the rectangles with an area of 12 square units.



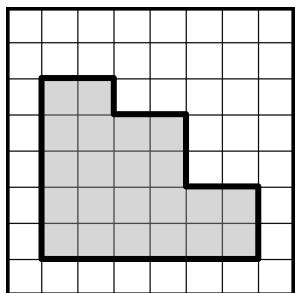
## Practice

- Which shape has a larger area?  
Show or explain how you know.

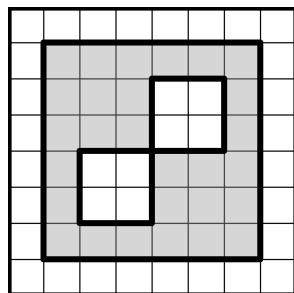


Determine the area of each shape. Each small square represents one square unit.

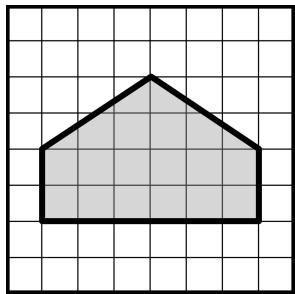
2.1



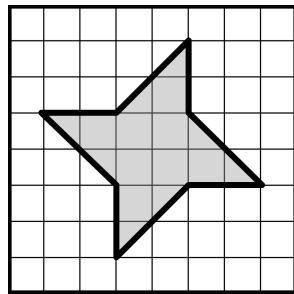
2.2



2.3

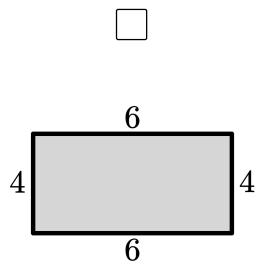
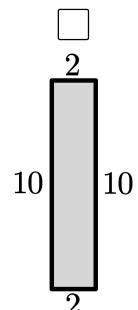
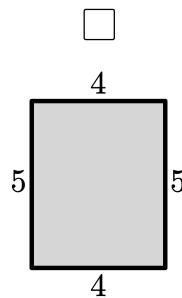
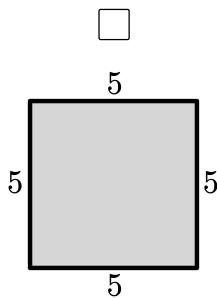


2.4



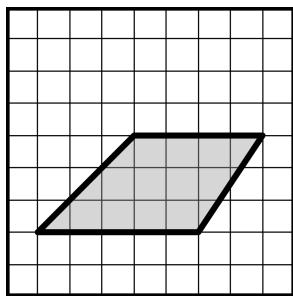
**Unit 6.1, Lesson 3: Practice Problems**

Name \_\_\_\_\_

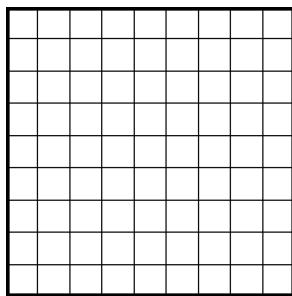
**Warm-Up**Select **all** the rectangles with an area of 20 square units.**Practice**

In this practice set, each small square in the grid represents 1 square centimeter.

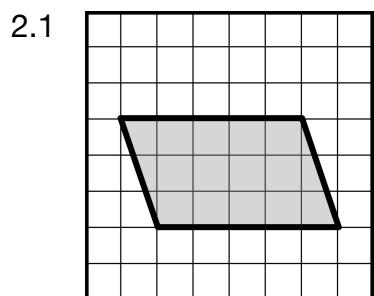
- 1.1 Explain how you know this quadrilateral is
- not**
- a parallelogram.



- 1.2 Draw your own parallelogram. Label its base and height.



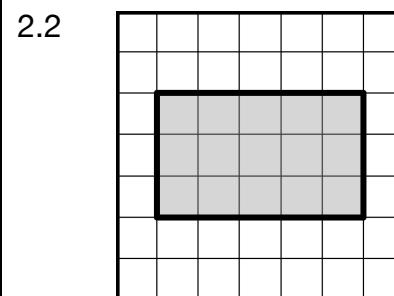
Determine a base and height for each parallelogram. Then determine its area. Use appropriate units.



Base: \_\_\_\_\_

Height: \_\_\_\_\_

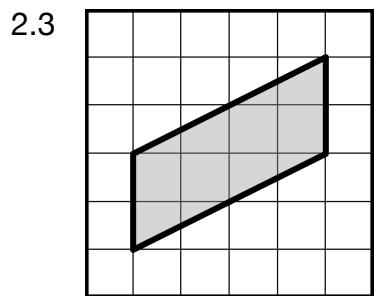
Area: \_\_\_\_\_



Base: \_\_\_\_\_

Height: \_\_\_\_\_

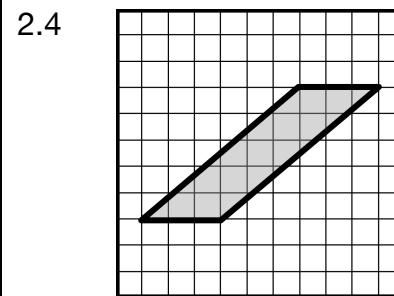
Area: \_\_\_\_\_



Base: \_\_\_\_\_

Height: \_\_\_\_\_

Area: \_\_\_\_\_



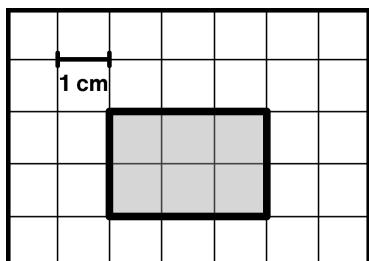
Base: \_\_\_\_\_

Height: \_\_\_\_\_

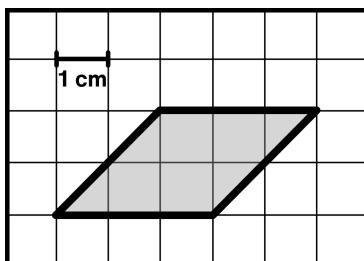
Area: \_\_\_\_\_

**Warm-Up**

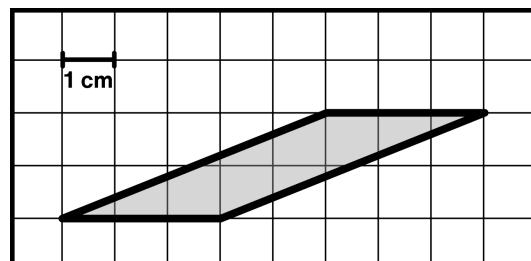
Calculate the area of each parallelogram in square centimeters.



Area: \_\_\_\_\_



Area: \_\_\_\_\_

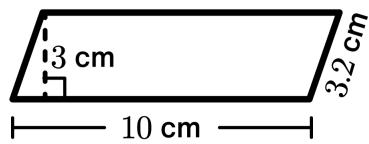


Area: \_\_\_\_\_

**Practice**

Determine a base and height for each parallelogram. Then determine its area. Use appropriate units.

1.1

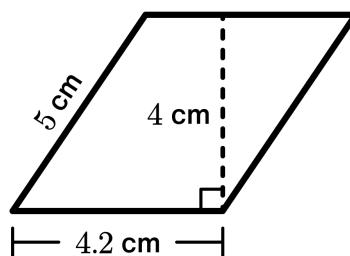


Base: \_\_\_\_\_

Height: \_\_\_\_\_

Area: \_\_\_\_\_

1.2

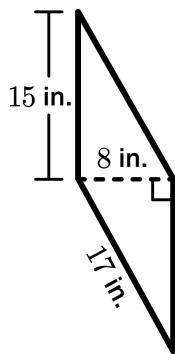


Base: \_\_\_\_\_

Height: \_\_\_\_\_

Area: \_\_\_\_\_

1.3



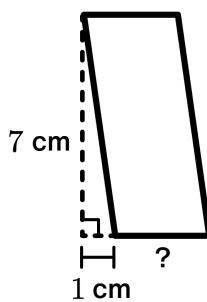
Base: \_\_\_\_\_

Height: \_\_\_\_\_

Area: \_\_\_\_\_

1.4

The area is 21 square units. What are the base and height?

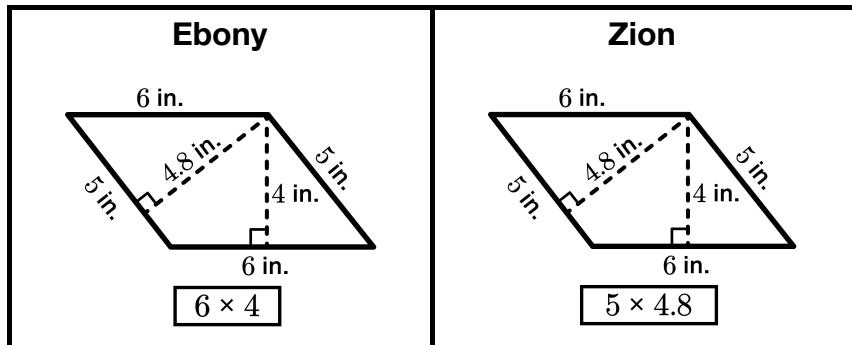


Base: \_\_\_\_\_

Height: \_\_\_\_\_

Area: 21 square units

2. Ebony and Zion each calculated the area of the parallelogram. Who is correct? Explain your reasoning.



## Unit 6.1, Lesson 5: Practice Problems

Name \_\_\_\_\_

**Warm-Up**Select **all** of the expressions that have the same value as  $8 \div 2$ .

$\frac{8}{2}$

$8 \cdot 2$

$2 \div 8$

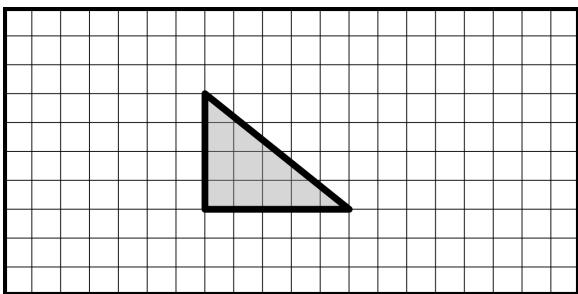
$\frac{1}{2} \cdot 8$

$\frac{2}{8}$

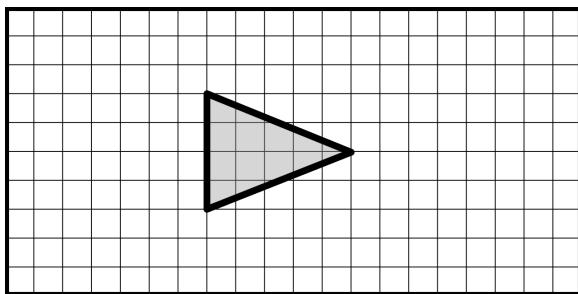
**Practice**

Determine the area of each triangle in square units.

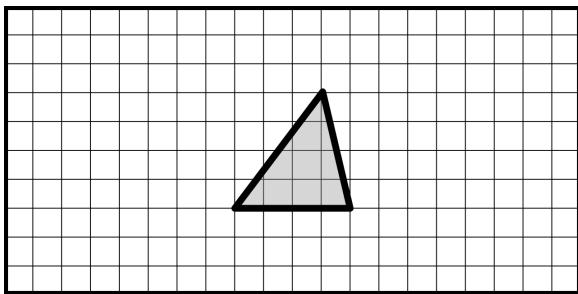
1.1 Area: \_\_\_\_\_



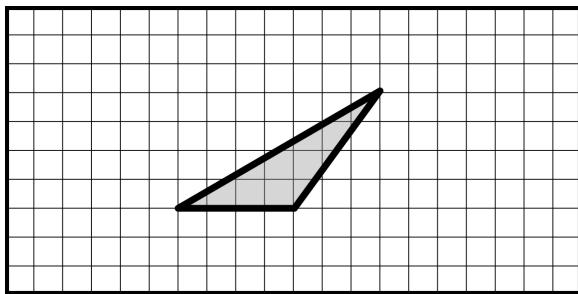
1.2 Area: \_\_\_\_\_



1.3 Area: \_\_\_\_\_



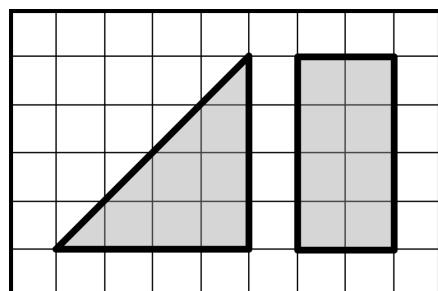
1.4 Area: \_\_\_\_\_



1.5 How are the areas of 1.1 and 1.2 related? Why does this make sense to you?

2. Aki thinks that these two shapes have the same area.

Is Aki correct? Explain your reasoning.



## Unit 6.1, Lesson 6: Practice Problems

Name \_\_\_\_\_

**Warm-Up**Select **all** of the expressions that have the same value as  $10 \div 5$ .

$\frac{10}{5}$

$10 \cdot 5$

$\frac{1}{5} \cdot 10$

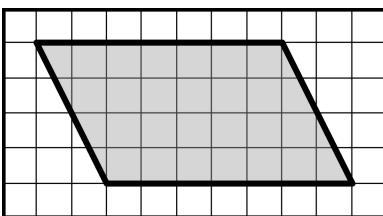
$10 \div 2$

$\frac{10}{2}$

**Practice**

Determine a base and a height for each shape. Then determine its area. Use appropriate units.

1.1

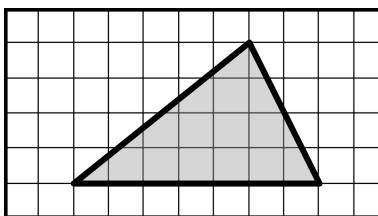


Base: \_\_\_\_\_

Height: \_\_\_\_\_

Area: \_\_\_\_\_

1.2

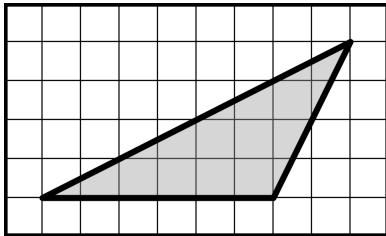


Base: \_\_\_\_\_

Height: \_\_\_\_\_

Area: \_\_\_\_\_

1.3

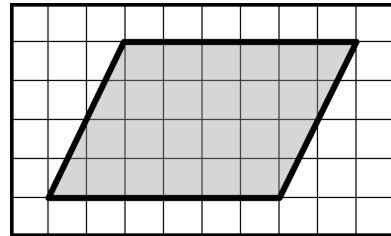


Base: \_\_\_\_\_

Height: \_\_\_\_\_

Area: \_\_\_\_\_

1.4



Base: \_\_\_\_\_

Height: \_\_\_\_\_

Area: \_\_\_\_\_

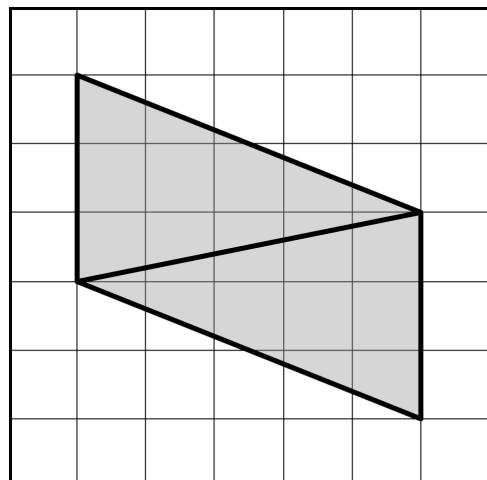
1.5 How are the areas of 1.1 and 1.2 related? Why does this make sense to you?

Here is a parallelogram with a line connecting two corners.

2.1 What is the area of the parallelogram?

2.2 What is the area of the top triangle?

2.3 What is the area of the bottom triangle?



## Warm-Up

Determine the value of each expression.

$$8 \cdot 6 = \underline{\hspace{2cm}}$$

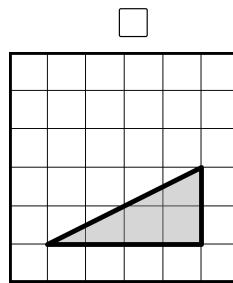
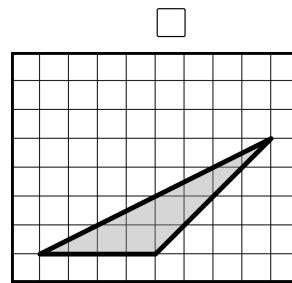
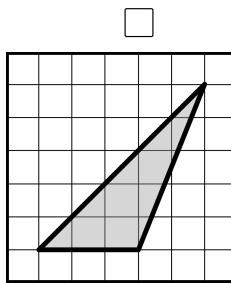
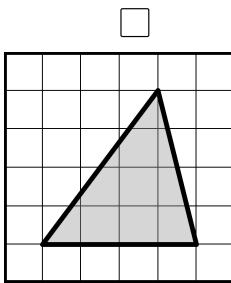
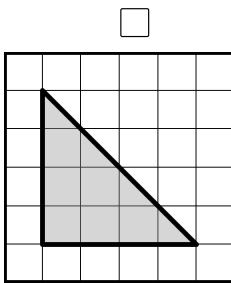
$$\frac{1}{2} \cdot 8 \cdot 6 = \underline{\hspace{2cm}}$$

$$4 \cdot 10 \div 2 = \underline{\hspace{2cm}}$$

$$\frac{4 \cdot 10}{2} = \underline{\hspace{2cm}}$$

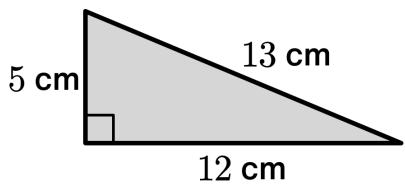
## Practice

1. Select **all** of the triangles that have an area of 8 square units.

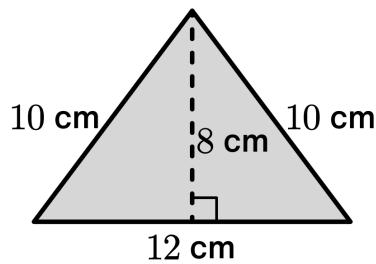


Calculate the area of each triangle. Use appropriate units.

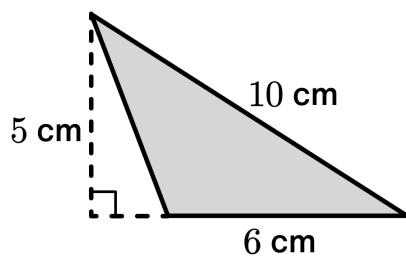
2.1 Area: \_\_\_\_\_



2.2 Area: \_\_\_\_\_



2.3 Area: \_\_\_\_\_



## Warm-Up

Complete each sentence with a number that makes the equation true.

$5 \cdot \underline{\quad} = 15$

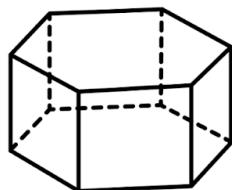
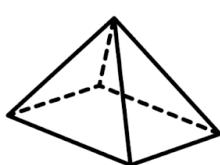
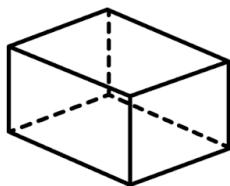
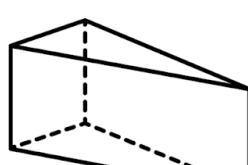
$7 \cdot \underline{\quad} = 28$

$28 \cdot \underline{\quad} = 7$

$12 \cdot \underline{\quad} = 3$

## Practice

Use these five polyhedra to answer the questions below.

**A****B****C****D****E**

1.1 How many faces does A have?

1.3 How many faces does D have?

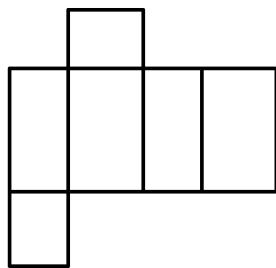
1.2 Describe or draw each of A's faces.

1.4 Describe or draw each of D's faces.

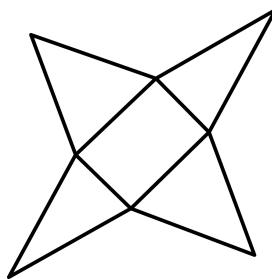
1.5 Write the letter of each polyhedron in the appropriate box.

Prism	Pyramid

1.6 Which polyhedron could this be a net for?



1.7 Which polyhedron could this be a net for?



## Warm-Up

Complete each sentence with a number that makes the equation true.

$$3 \cdot \underline{\quad} = 15$$

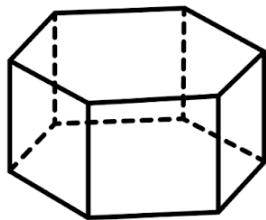
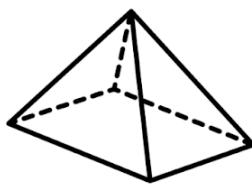
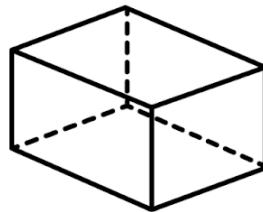
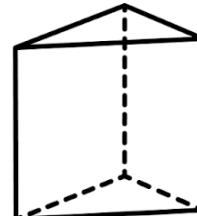
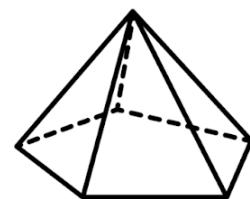
$$15 \cdot \underline{\quad} = 3$$

$$4 \cdot \underline{\quad} = 24$$

$$24 \cdot \underline{\quad} = 4$$

## Practice

Use these five polyhedra to answer the questions below.

**A****B****C****D****E**

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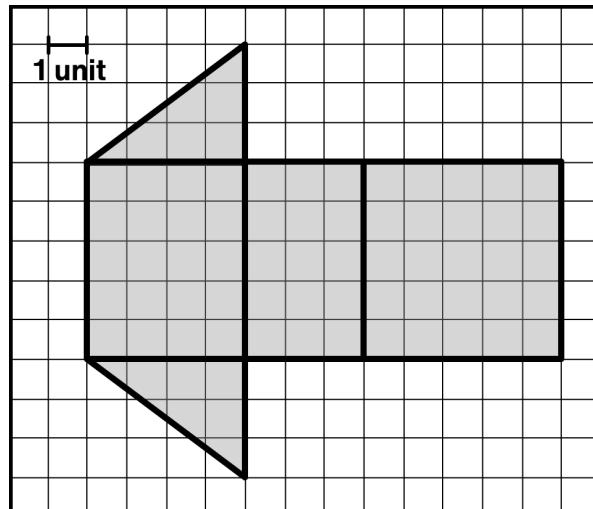
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- 1.1 Write the name of each polyhedron below its picture.

- 1.2 Which polyhedron can be created from this net?

Explain how you know.

- 1.3 Use the net to calculate the surface area of the polyhedron. Use appropriate units.



2. Select **all** units that can be used to describe surface area.

Square meters

Feet

Centimeters

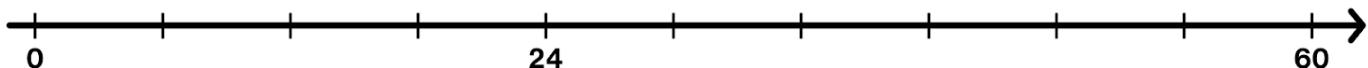
Cubic inches

Square inches

Square feet

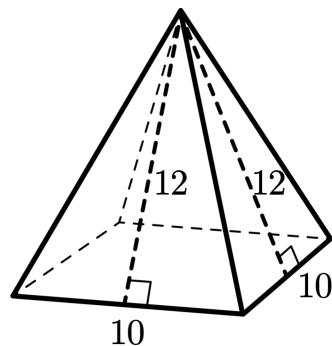
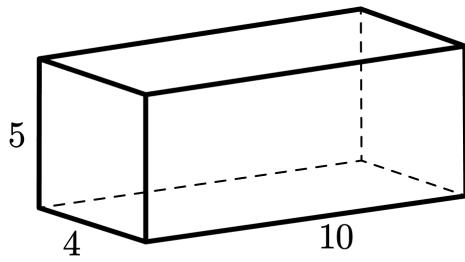
## Warm-Up

Label each tick mark with its value on the number line.

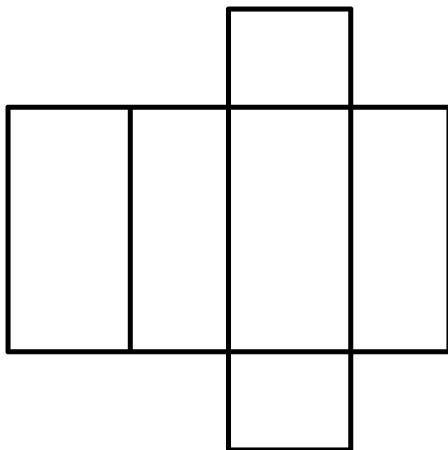


## Practice

Here are two polyhedra and their nets.

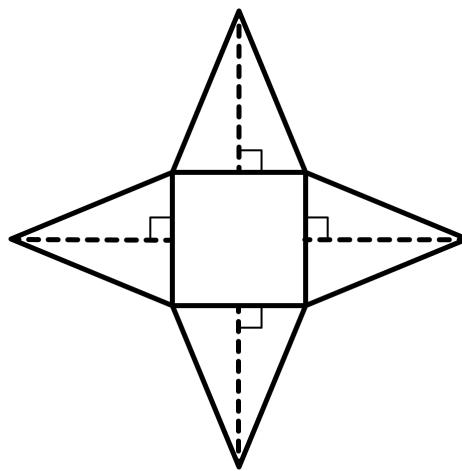


- 1.1 What is the name of this solid?
  
- 1.2 Use the polyhedron above to label all the lengths in this net.



- 1.3 Calculate the surface area.  
Explain or show your reasoning.

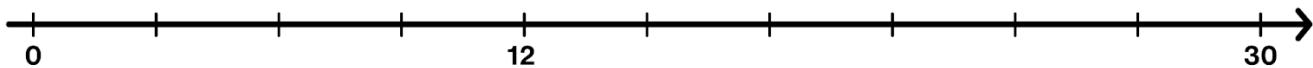
- 2.1 What is the name of this solid?
  
- 2.2 Use the polyhedron above to label all the lengths in this net.



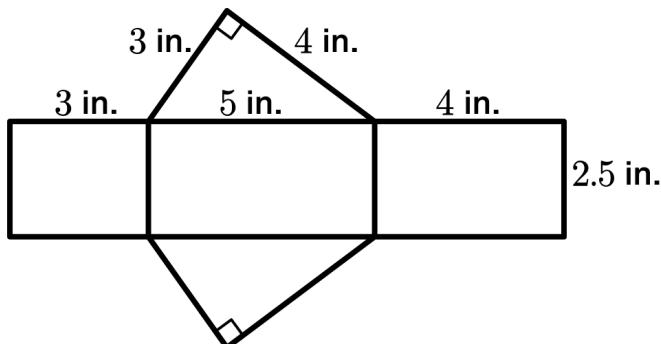
- 2.3 Calculate the surface area.  
Explain or show your reasoning.

## Warm-Up

Label each tick mark with its value on the number line.



## Practice

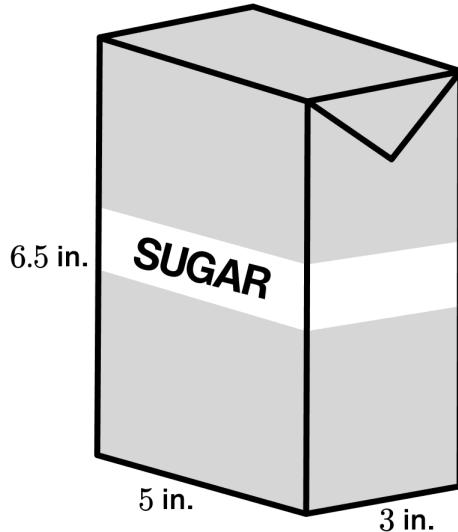


- 1.1 If this net were folded, what polyhedron would it make?
  
- 1.2 What is the surface area of the polyhedron? Explain or show your reasoning.

A box of sugar is 5 inches by 3 inches by 6.5 inches.

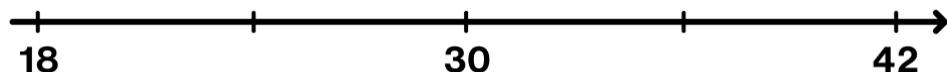
- 2.1 Estimate about how much cardboard the box uses. Show all of your thinking.

- 2.2 Estimate about how much sugar the box can hold. Show all of your thinking.



## Warm-Up

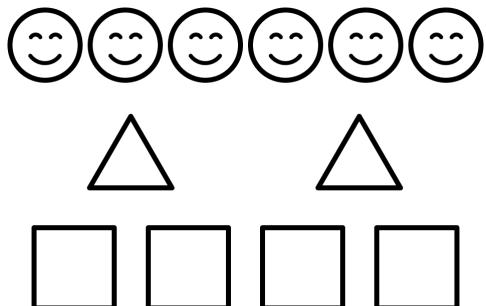
Label the blank tick marks on the number line.



## Practice

Answer the questions based on this picture.

- 1.1 The ratio of smiley faces to triangles is \_\_\_\_ to \_\_\_\_.
- 1.2 The ratio of squares to triangles is \_\_\_\_ : \_\_\_\_.
- 1.3 For every 2 triangles, there are \_\_\_\_\_ squares.
- 1.4 Select the false statement.
  - A. The ratio of smiley faces to squares is 4 : 6 .
  - B. The ratio of squares to triangles is 4 : 2 .
  - C. There are 3 smiley faces for every 1 triangle.

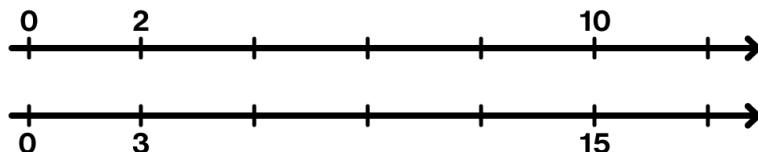


Create a representation for each situation.

Description	Picture
2.1 The ratio of stars to squares is 1 to 2 .	
2.2 The ratio of stars to hearts is 3 : 2 .	
2.3 There is 1 heart for every 3 squares.	
2.4	
2.5	

## Warm-Up

Label the blank tick marks on each number line.

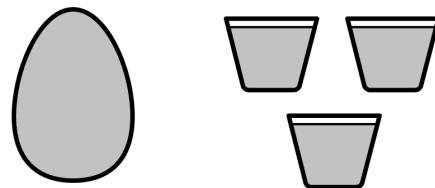


## Practice

There are many recipes for pasta. Some of them call for the following ratio of eggs to flour.

- 1.1 Draw a picture that shows how many ounces of flour you would need for 2 eggs.

Mix 1 egg for every 3 ounces of flour.



Fill in the blanks to create equivalent ratios.

1.2

- 4 eggs
- \_\_\_\_ ounces of flour

1.3

- \_\_\_\_ eggs
- 15 ounces of flour

- 1.4 Thiago mixed 3 eggs with 6 ounces of flour.

Will his pasta taste the same as the original? Explain your thinking.

2. A bakery uses this ratio of water to flour to bake their bread recipe.

List 2 other ratios of water to flour that would make the same type of bread.

\_\_\_\_ pounds of water : \_\_\_\_ pounds of flour

\_\_\_\_ pounds of water : \_\_\_\_ pounds of flour

Mix 3 pounds water for every 5 pounds flour.





## Science Mom Lesson 14

### Unit 6.2, Lesson 5: Practice Problems

Name \_\_\_\_\_

### Warm-Up

Determine the value of each expression.

$7 \cdot 4 = \underline{\hspace{2cm}}$

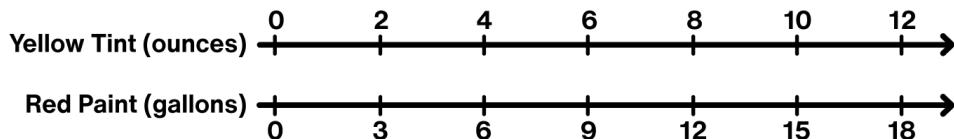
$7 \cdot 30 = \underline{\hspace{2cm}}$

$7 \cdot 34 = \underline{\hspace{2cm}}$

$7 \cdot 68 = \underline{\hspace{2cm}}$

### Practice

A shade of orange paint is made by mixing 2 ounces of yellow tint with 3 gallons of red paint.



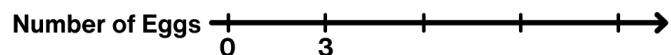
- 1.1 List two other combinations of red paint and yellow tint that can create this shade of orange.
  
- 1.2 How much red paint do you need for 6 ounces of yellow tint?
  
- 1.3 How much yellow tint do you need for 12 gallons of red paint?

This double number line diagram shows the amount of flour and eggs for one batch of cookies.

- 2.1 Complete the double number line.



- 2.2 What is the ratio of cups of flour to eggs?



- 2.3 How much flour do you need for 12 eggs?

- 2.4 How many eggs do you need for 15 cups of flour? Explain or show your thinking.

## Warm-Up

Determine the value of each expression.

$8 \cdot 10 = \underline{\hspace{2cm}}$

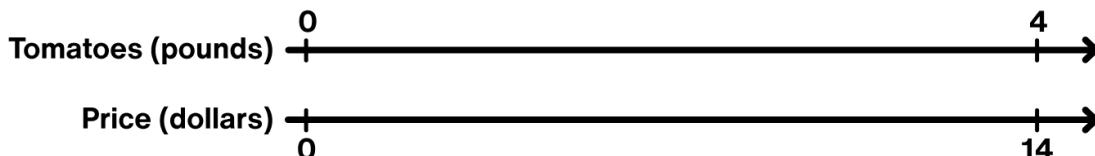
$8 \cdot 40 = \underline{\hspace{2cm}}$

$8 \cdot 41 = \underline{\hspace{2cm}}$

$8 \cdot 38 = \underline{\hspace{2cm}}$

## Practice

The double number line below shows that 4 pounds of tomatoes cost \$14.



- 1.1 Draw and label tick marks that show the prices of 1, 2, and 3 pounds of tomatoes.
- 1.2 Ariel needs 6 pounds of tomatoes to make sauce. How much would that cost?

Callen bought several items at the grocery store. Calculate the price per item.

2.1 12 eggs for \$3

2.2 3 bags of rice for \$7.50

2.3 10 apples for \$3.50

At these rates, how much would it cost for:

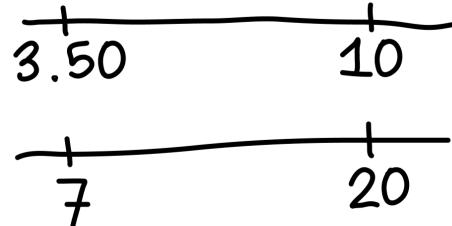
2.4 6 eggs?

2.5 4 bags of rice?

2.6 7 apples?

Callen drew a double number line for Problem 2.6.

- 3.1 What did Callen do well?



- 3.2 What advice would you give them?



## Warm-Up

Complete each equation with a number that makes it true.

$$8 \cdot 40 = \underline{\hspace{2cm}}$$

$$8 \cdot \underline{\hspace{2cm}} = 40$$

$$40 \cdot \underline{\hspace{2cm}} = 8$$

$$40 \cdot \underline{\hspace{2cm}} = 5$$

## Practice

To make 1 can of sky-blue paint, Ama mixes 2 ounces of blue tint with 3 gallons of white paint.

1.1 How much of each color does Ama need to make 4 cans?

1.2 Write a ratio of blue tint to white paint that would be a darker shade of blue.

1.3 Write a ratio of blue tint to white paint that would be a lighter shade of blue.

2. Here are two mixtures of light-purple paint.

- Peony Purple: 5 ounces of purple tint for every 2 cups of white paint
- Purple Pizazz: 15 ounces of purple tint for every 8 cups of white paint

Which mixture is a lighter shade of purple? Explain your reasoning.

3. Here are three mixtures of green paint.

- 2 gallons white : 4 ounces green
- 3 gallons white : 5 ounces green
- 5 gallons white : 8 ounces green

Order the mixtures from lightest green to darkest green.

Lightest green

\_\_\_\_\_

Darkest green

## Warm-Up

Complete each equation with a number that makes it true.

$$35 \cdot 5 = \underline{\hspace{2cm}}$$

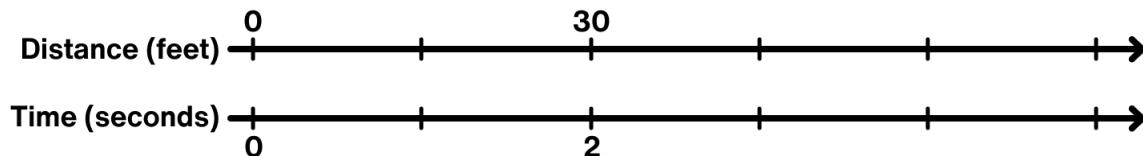
$$35 \div 5 = \underline{\hspace{2cm}}$$

$$5 \div \underline{\hspace{2cm}} = 1$$

$$5 \cdot \underline{\hspace{2cm}} = 1$$

## Practice

A person on a scooter travels 30 feet in 2 seconds at a constant rate.



- 1.1 Fill in the missing values on the double number line.
- 1.2 What is the speed of the scooter in feet per second? \_\_\_\_\_
- 1.3 At this rate, determine how long it would take the scooter to travel 105 feet.
  
- 1.4 A person on a skateboard travels 55 feet in 4 seconds. Is the skateboard traveling faster than, slower than, or at the same speed as the scooter? Explain or show your reasoning.
  
- 1.5 A person on roller blades travels 90 feet in 5 seconds. Are the roller blades traveling faster than, slower than, or at the same speed as the scooter? Explain or show your reasoning.
  
2. Did you know the top speeds of these animals?
  - Galapagos tortoise: 16 meters in 3 minutes
  - Garden snail: 8 meters in 5 minutes
  - Three-toed sloth: 9 meters in 2 minutes

Order the animals from slowest to fastest.

Slowest \_\_\_\_\_ Fastest \_\_\_\_\_

## Warm-Up

Complete each equation with a number that makes it true.

$$8 \cdot \underline{\quad} = 40$$

$$8 \cdot \underline{\quad} = 20$$

$$8 \cdot \underline{\quad} = 200$$

$$8 \cdot \underline{\quad} = 2$$

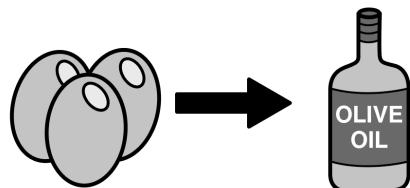
## Practice

Did you know it takes about 40 pounds of olives to make 3 liters of olive oil?

- 1.1 Orchard A grew about 2 000 pounds of olives.

How many liters of olive oil would this make?

Use the table if it helps you with your thinking.



- 1.2 Orchard B grew about 3 000 pounds of olives.

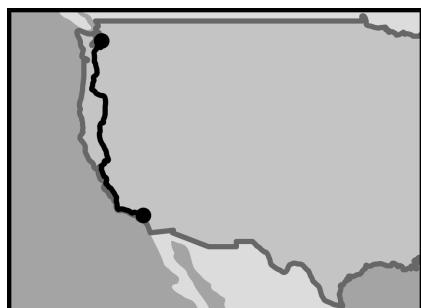
How many liters of olive oil would this make?

Olives (lb.)	Olive Oil (L)
40	3

There is a train that travels from Seattle, Washington, to Los Angeles, California. In its first 2 hours, the train went about 80 miles, including stops.

- 2.1 At this rate, how far does the train travel per hour?

- 2.2 At this rate, how long will it take to travel the 1 400 miles from Seattle to Los Angeles?



## Warm-Up

Complete each equation with a number that makes it true.

$$8 \cdot \underline{\quad} = 1$$

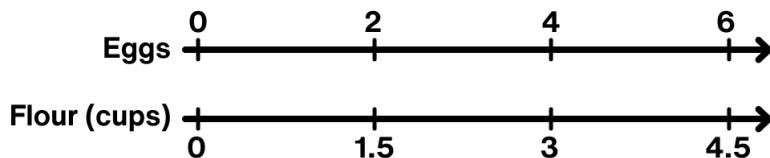
$$\frac{1}{8} \cdot 8 = \underline{\quad}$$

$$\frac{5}{8} \cdot 8 = \underline{\quad}$$

$$8 \cdot \underline{\quad} = 3$$

## Practice

Here is part of a recipe for different-size cakes, showing the ratio of eggs to flour.

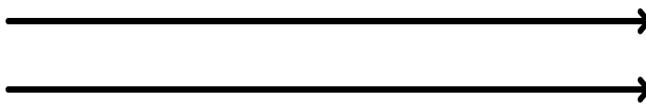


- 1.1 Make a table that represents the same situation.
- 1.2 How much flour do you need for each egg in this recipe?
- 1.3 How many eggs would you need for a bag that contains 18 cups of flour?

Eggs	Flour (cups)

The same cake recipe uses 2 cups of sugar for every 3 cups of flour.

- 2.1 Draw a double number line to represent this situation.



- 2.2 How much sugar would you need for a bag that contains 18 cups of flour?
- 2.3 Which representation do you prefer to answer the previous question: a table or a double number line? Explain your thinking.

## Warm-Up

What is  $\frac{1}{2}$  of 12?

What is  $\frac{1}{4}$  of 12?

What is  $\frac{3}{4}$  of 12?

## Practice

The ratio of coaches to players at practice is 2 : 5. There are 21 people at practice.

- 1.1 Label the tape diagram to represent the situation. Include the value of each small rectangle.

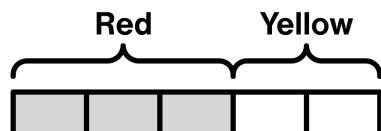


- 1.2 How many coaches are in the room?

- 1.3 How many players are in the room?

Here is a tape diagram representing the ratio of red paint to yellow paint in a mixture of orange paint.

- 2.1 What is the ratio of red paint to yellow paint?



- 2.2 If I had 6 gallons of red paint, how much yellow paint would I need? \_\_\_\_\_

How much red and yellow paint would I need if I wanted:

- 2.3 25 gallons of orange?

- 2.4 30 gallons of orange?

Red paint: \_\_\_\_\_ Yellow paint: \_\_\_\_\_

Red paint: \_\_\_\_\_ Yellow paint: \_\_\_\_\_

## Warm-Up

What is  $\frac{1}{2}$  of 20?

What is  $\frac{1}{5}$  of 20?

What is  $\frac{3}{5}$  of 20?

## Practice

Pasta is made from 3 parts water and 5 parts flour. Sora is making 32 ounces of pasta for a party.

- 1.1 Label the tape diagram to represent the situation.



1.2 How much water does Sora need to make 32 ounces of pasta?

1.3 How much flour does Sora need to make 32 ounces of pasta?

Sora is also making a salad. Her salad dressing recipe uses 6 teaspoons of vinegar for every 15 teaspoons of olive oil.

2.1 How much vinegar does Sora need for 5 teaspoons of olive oil?

2.2 How much olive oil does Sora need for 8 teaspoons of vinegar?

2.3 If Sora makes 42 teaspoons of salad dressing, how much of each ingredient is in it?

2.4 If Sora makes 14 teaspoons of salad dressing, how much of each ingredient is in it?



## Warm-Up

Select all the expressions that are equivalent to  $2 \cdot \frac{2}{5}$ .

 0.8  $\frac{4}{10}$   $\frac{1}{5}$  2.4  $\frac{4}{5}$ 

## Practice

Choose the unit you would most likely use to measure each object.

- 1.1 The height of a building \_\_\_\_
- 1.2 The length of a fingernail \_\_\_\_
- 1.3 The mass of a paper clip \_\_\_\_
- 1.4 The distance between two cities \_\_\_\_
- 1.5 The weight of a package \_\_\_\_
- 1.6 The volume of a water cooler \_\_\_\_

- A. Gallons
- B. Centimeters
- C. Grams
- D. Pounds
- E. Feet
- F. Kilometers

Circle the larger unit of measure. Then determine if the unit measures length, volume, or mass.

- 2.1 meter or kilometer
- 2.2 yard or foot
- 2.3 pound or ounce

Name an object that:

- 3.1 Is about 1 meter in length.
- 3.2 Weighs about 5 pounds.

- 3.3 Has an area around 1 square foot.
- 3.4 Is about 1 centimeter in length.



## Science Mom Lesson 23

### Unit 6.3, Lesson 3: Practice Problems

Name \_\_\_\_\_

### Warm-Up

Select all the expressions that are equivalent to  $4 \cdot \frac{3}{8}$ .

$\frac{12}{8}$

$\frac{3}{2}$

$\frac{12}{32}$

4.325

1.5

### Practice

$1 \text{ kg} = 1000 \text{ g}$

$3 \text{ oz.} \approx 85 \text{ g}$

$4 \text{ kg} \approx 141 \text{ oz.}$

$11 \text{ lb.} \approx 5 \text{ kg}$

1.1 15 oz. is approximately  
\_\_\_\_\_ g.

1.2 2 kg is approximately  
\_\_\_\_\_ oz.

1.3 20 lb. is approximately  
\_\_\_\_\_ kg.

2. Malik's height is 57 inches. What could be his height in centimeters? (100 inches = 254 cm)

A. 22.4

B. 57

C. 144.8

D. 3 551

Explain your reasoning.

Jordan's family exchanged 250 dollars for 5 000 pesos.

3.1 Jordan bought a sweater for 550 pesos. How many dollars did the sweater cost?

3.2 If Jordan's family exchanges 200 dollars at the same rate, how many pesos will they have?



## Warm-Up

Order these from slowest to fastest speed. Every speed is in miles per hour.

10.5

10.05

 $\frac{43}{5}$  $\frac{43}{4}$ 

Slowest speed \_\_\_\_\_ Fastest speed \_\_\_\_\_

## Practice

Mia and Liam were trying out new remote control cars. Mia's traveled 135 feet in 3 seconds. Liam's traveled 228 feet in 6 seconds. Both cars traveled at a constant speed.

- |   |  |                            |
|---|--|----------------------------|
| 1.1 How far did Mia's car travel in 1 second? | 1.2 How far did Liam's car travel in 1 second? | 1.3 Whose traveled faster? |
|---|--|----------------------------|
- 1.4 Deven says he has a remote control car that can travel 12 yards per second. Is his car faster or slower than the other two?
2. The cost of 5 cans of pinto beans is \$3.35 . At this rate, how much do 11 cans of pinto beans cost? Explain your reasoning.
3. Ivan is curious if he can run faster than a rabbit. He runs 90 feet in 5 seconds. The average rabbit can run at a speed of 35 feet per second. Is Ivan faster than the rabbit?  
Explain your reasoning.



## Warm-Up

Determine the value of each expression.

$\frac{1}{4} \text{ of } 60 =$

$\frac{3}{4} \cdot 60 =$

$\frac{1}{4} \cdot 30 =$

$\frac{3}{4} \cdot 30 =$

## Practice

A copy machine can make 500 copies every 4 minutes.

- |  |   |
|--|---|
| 1.1 How many copies per minute can it make?    | 1.2 How many minutes per copy?                                  |
| 1.3 How many copies can it make in 10 minutes? | 1.4 A teacher made 700 copies.<br>How long did it take to make? |

Jamar's class painted 50 square feet of a mural using 4 cans of paint.

- 2.1 How many square feet could they paint **per can of paint?**
- 2.2 How many cans did they use **per square foot?**
- 2.3 They want to paint a total of 310 square feet. How many cans of paint will they need?  
Show or explain your thinking.
- 2.4 Jamar predicted that they would need 3 875 cans of paint. His work is below.

$$310 \cdot 12.5 \text{ cans per square foot} = 3875 \text{ cans}$$

Do you agree? Explain your reasoning.



## Warm-Up

Determine the value of each expression.

$\frac{1}{3} \text{ of } 66 =$

$\frac{1}{3} \cdot 33 =$

$\frac{2}{3} \cdot 33 =$

$\frac{5}{3} \cdot 33 =$

## Practice

The table shows the amounts of onions and tomatoes in different-size batches of a salsa recipe.

- 1.1 How many onions do you need to go with 40 tomatoes?

Onions	Tomatoes
2	16
4	32
10	80

- 1.2 How many tomatoes do you need to go with 3.5 onions?

- 1.3 One unit rate in this situation is 8. What does it mean?

- 1.4 Another unit rate is  $\frac{1}{8}$ . What does it mean?

It takes 10 pounds of potatoes to make 15 servings of mashed potatoes. At this rate:

- 2.1 How many servings of mashed potatoes can be made with 15 pounds of potatoes?  
Use the table if it helps with your thinking.

Potatoes (lb.)	Mashed Potatoes (servings)
10	15

- 2.2 How many pounds of potatoes are needed to make 50 servings of mashed potatoes?



## Warm-Up

Shade each fraction of the rectangle below it.

$$\frac{5}{6}$$

--	--	--	--	--	--

$$\frac{1}{2}$$

--	--	--	--	--	--

$$\frac{2}{3}$$

--	--	--	--	--	--

## Practice

Biryani is a rice dish from South Asia. Three students made Alisha's biryani recipe using different-size scoops.

If Alisha's biryani recipe uses 4 cups of rice, how many scoops of rice does each student need?

1.1 Alisha: 2 -cup scoop

1.2 Lukas:  $\frac{1}{2}$  -cup scoop

1.3 Emma:  $\frac{1}{3}$  -cup scoop

1.4 Explain why you can represent Emma's situation with the equation  $4 \div \frac{1}{3} = ?$ .

Answer each question.

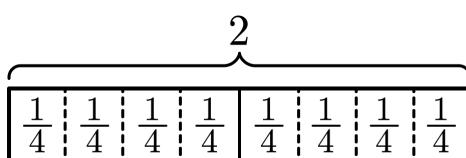
2.1 How many  $\frac{1}{2}$ 's make 5?

2.2 How many  $\frac{1}{4}$ 's make 3?

2.3 How many  $\frac{3}{4}$ 's make 3?

Lukas drew this diagram to represent "how many  $\frac{1}{4}$ 's make 2."

3.1 Write an equation to represent Lukas's diagram.



3.2 Answer Lukas's question.

**Unit 6.4, Lesson 4: Practice Problems**

Name \_\_\_\_\_

**Warm-Up**Select **all** the equations where the value of the ? is 4.

$$\square 12 \div 3 = ? \quad \square 3 \cdot ? = 12 \quad \square \frac{3}{12} = ? \quad \square 12 \cdot ? = 3 \quad \square \frac{12}{3} = ?$$

**Practice**

Abena is planting vegetables in her backyard. Determine how many of each vegetable Abena can plant in 1 planter. Use the diagrams if they help you with your thinking.

- 1.1 10 onions filled  $\frac{1}{2}$  of a planter.



- 1.2 8 asparagus filled  $\frac{2}{3}$  of a planter.



- 1.3 6 potatoes filled  $\frac{3}{4}$  of a planter.

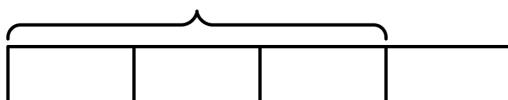


- 1.4 Abena wrote the expression  $6 \div \frac{3}{4}$  to represent how many potatoes fill 1 planter.

Describe a situation that represents  $8 \div \frac{4}{5}$ .

Ashley picked 9 strawberries from her backyard, which filled  $\frac{3}{4}$  of a cup.

- 2.1 Label the tape diagram to represent Ashley's situation.



- 2.2 How many strawberries fill 1 cup? Use the tape diagram if it helps you with your thinking.



## Science Mom Lesson 29

## Unit 6.4, Lesson 5: Practice Problems

Name \_\_\_\_\_

## Warm-Up

Write each mixed number as an improper fraction. For example:  $5 \frac{1}{2} = \frac{11}{2}$ .

$$1 \frac{1}{2} = \underline{\hspace{2cm}}$$

$$1 \frac{3}{4} = \underline{\hspace{2cm}}$$

$$2 \frac{3}{5} = \underline{\hspace{2cm}}$$

$$5 \frac{2}{3} = \underline{\hspace{2cm}}$$

## Practice

Complete each row in the table.

Question	Tape Diagram	Answer
1.1 How many $\frac{1}{4}$ s are in 3?		
1.2 How many $\frac{2}{5}$ s are in 2?		
1.3 How many $\frac{3}{5}$ s are in 2?		
1.4 What is $3 \frac{2}{5} \div \frac{4}{5}$ ?		
1.5 What is _____ $\div$ _____?		
1.6 What is $6 \frac{1}{2} \div \frac{3}{4}$ ?		



# Science Mom Lesson 30

## Unit 6.4, Lesson 6: Practice Problems

Name \_\_\_\_\_

### Warm-Up

Write each improper fraction as a mixed number. For example:  $\frac{11}{2} = 5\ \frac{1}{2}$ .

$$\frac{9}{5} = \underline{\hspace{2cm}}$$

$$\frac{9}{4} = \underline{\hspace{2cm}}$$

$$\frac{15}{4} = \underline{\hspace{2cm}}$$

$$\frac{16}{5} = \underline{\hspace{2cm}}$$

### Practice

1. Select **all** of the expressions whose value is greater than 1.

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

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

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

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

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

Afia uses a  $\frac{1}{2}$ -cup scoop for flour. How many scoops does Afia need for each amount of flour?

2.1    1 cup of flour

2.2     $\frac{1}{4}$  cups of flour

2.3     $\frac{3}{4}$  cups of flour

Determine if the value of each expression will be greater than or less than 1. Then calculate its value. Use the tape diagrams if they help you with your thinking.

3.1     $1\ \frac{1}{2} \div \frac{2}{3}$

**Circle One**

Less than 1

Greater than 1



3.2     $\frac{4}{3} \div \frac{3}{2}$

**Circle One**

Less than 1

Greater than 1



**Value:**

**Value:**



## Warm-Up

Write each mixed number as an improper fraction and each improper fraction as a mixed number.

$$1\frac{3}{5} = \underline{\hspace{2cm}}$$

$$\frac{17}{4} = \underline{\hspace{2cm}}$$

$$3\frac{1}{4} = \underline{\hspace{2cm}}$$

$$\frac{11}{3} = \underline{\hspace{2cm}}$$

## Practice

1. Here is Irelle's work for calculating  $\frac{2}{3} \div \frac{3}{4}$ . Explain what you think Irelle did at each step.

Step 1:

$$\frac{2}{3} \div \frac{3}{4}$$

Step 1:  $\frac{8}{12} \div \frac{9}{12}$

Step 2:

Step 2:  $\frac{8}{9}$

Calculate the value of each expression.

2.1  $5 \div \frac{3}{5}$

2.2  $2\frac{1}{2} \div \frac{5}{8}$

2.3  $\frac{4}{3} \div \frac{5}{2}$

2.4  $\frac{10}{4} \div \frac{4}{5}$

- 2.5 Here is Sahana's work for Problem 2.4.  
What advice would you give Sahana?

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

$$4 \div 4 = 1$$

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

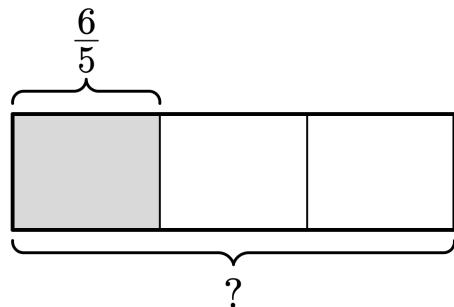
**Warm-Up**

Determine the value of each expression.

$$\frac{6}{5} \div \frac{3}{5} = \underline{\hspace{2cm}} \quad \frac{1}{5} \div \frac{3}{5} = \underline{\hspace{2cm}} \quad \frac{8}{3} \div \frac{2}{3} = \underline{\hspace{2cm}} \quad \frac{5}{3} \div \frac{2}{3} = \underline{\hspace{2cm}}$$

**Practice**

1. Use this tape diagram to help you calculate  $\frac{6}{5} \div \frac{1}{3}$ .



Complete each row in the table. Draw a tape diagram if it helps you with your thinking.

Question	Expression	Answer
2.1 6 bags of soil fill 2 gardens. How many bags fill 1 garden?		
2.2 2 bags of soil fill $\frac{1}{3}$ of a garden. How many bags fill 1 garden?	$2 \div \frac{1}{3}$	
2.3 $\frac{2}{3}$ cups of chocolate chips fill $\frac{1}{4}$ of a jar. How many cups fill 1 jar?		
2.4	$6 \div \frac{1}{4}$	



## Warm-Up

Determine the value of each expression.

$$\frac{1}{4} \cdot 4 = \underline{\hspace{2cm}}$$

$$\frac{3}{4} \cdot 4 = \underline{\hspace{2cm}}$$

$$\frac{4}{5} \cdot 2 = \underline{\hspace{2cm}}$$

$$\frac{4}{5} \div 2 = \underline{\hspace{2cm}}$$

## Practice

Use any strategy to calculate each quotient.

1.1     $10 \div \frac{1}{5}$

1.2     $10 \div \frac{3}{5}$

---

1.3     $3\frac{3}{4} \div \frac{3}{8}$

1.4     $\frac{1}{2} \div \frac{5}{3}$

2. It took 15 days to build  $\frac{3}{5}$  of a new road. At this rate, how long will it take to build the whole road? Show or explain your thinking.



## Warm-Up

Determine the value of each expression.

$$\frac{3}{5} \cdot 5 = \underline{\hspace{2cm}}$$

$$\frac{3}{5} \cdot 3 = \underline{\hspace{2cm}}$$

$$\frac{3}{5} \div 3 = \underline{\hspace{2cm}}$$

$$\frac{3}{5} \div 5 = \underline{\hspace{2cm}}$$

## Practice

Use any strategy to calculate each quotient.

1.1  $2\frac{1}{2} \div \frac{5}{8}$

1.2  $\frac{4}{3} \div \frac{5}{2}$

---

1.3  $3\frac{1}{2} \div \frac{1}{3}$

1.4  $3 \div \frac{2}{3}$

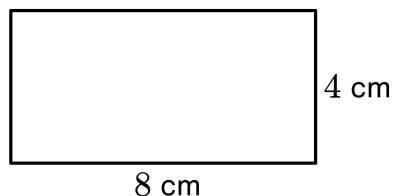
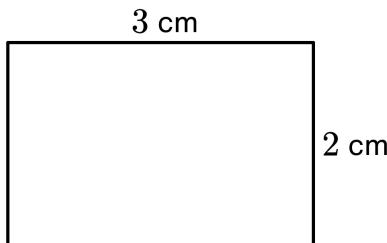
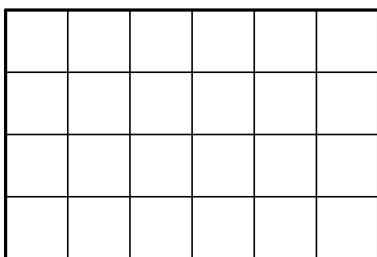
2.1 Describe a situation that could be represented by the expression  $3 \div \frac{2}{3}$ .

2.2 Explain what the value of  $3 \div \frac{2}{3}$  means in your situation.



## Warm-Up

Calculate the area of each rectangle.



\_\_\_\_\_ square units

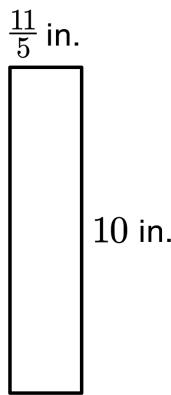
\_\_\_\_\_ square centimeters

\_\_\_\_\_ square centimeters

## Practice

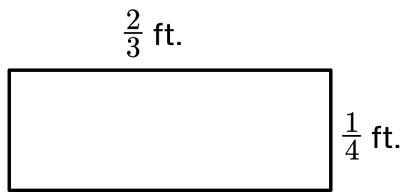
Calculate the area of each rectangle.

1.1



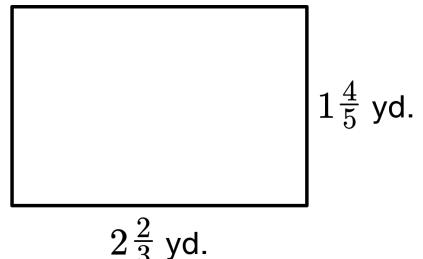
\_\_\_\_\_ square inches

1.2



\_\_\_\_\_ square feet

1.3

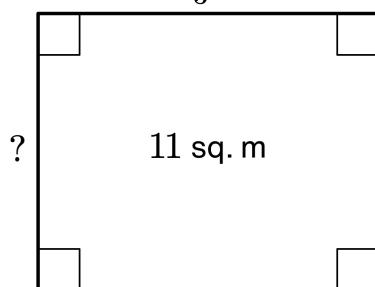


\_\_\_\_\_ square yards

2.1 Calculate the unknown side length of the rectangle.

2.2 Check your answer by multiplying it by  $3\frac{2}{3}$ .

$3\frac{2}{3} \text{ m}$



Is the product 11 square meters?

**Unit 6.5, Lesson 2: Practice Problems**

Name \_\_\_\_\_

**Warm-Up**

Complete each equation.

$56 + \underline{\quad} = 100$

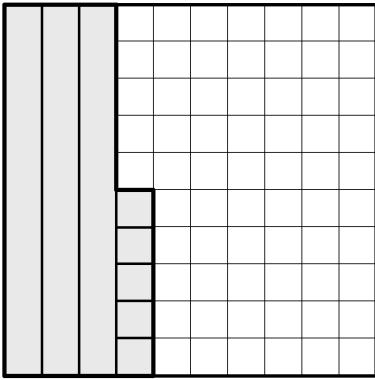
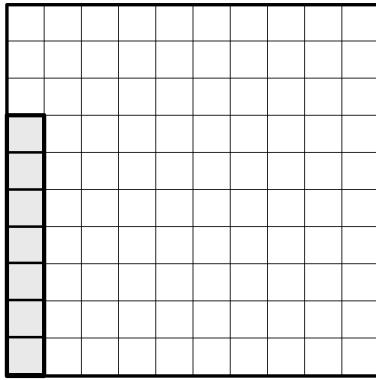
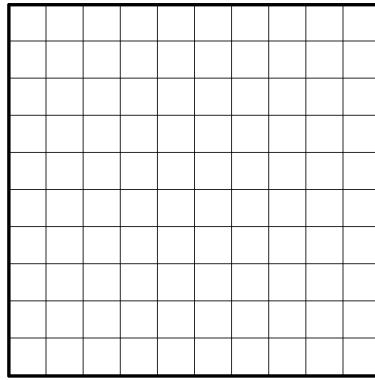
$0.56 + \underline{\quad} = 1$

$8 + \underline{\quad} = 100$

$1 - 0.08 = \underline{\quad}$

**Practice**

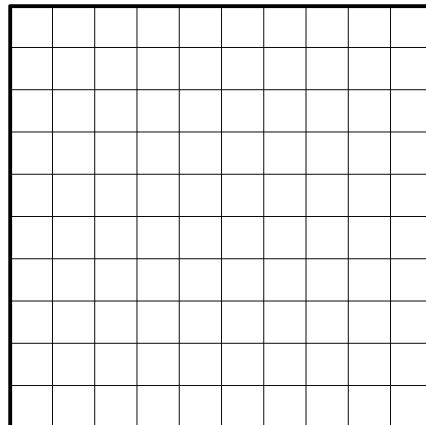
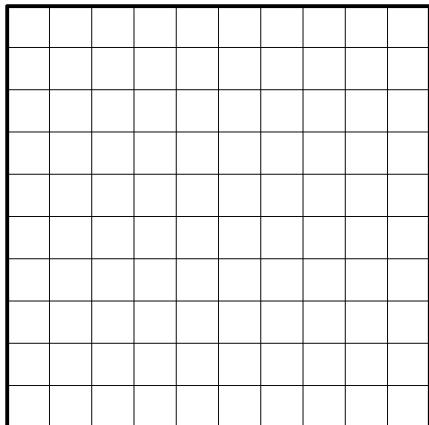
1. The large square is 1. Write the number that goes with the diagram, or make a diagram to go with the number.

Number			0.26
Diagram			

Determine the value of each expression. Use the diagrams if they help you with your thinking.

2.1  $0.24 + 0.607$

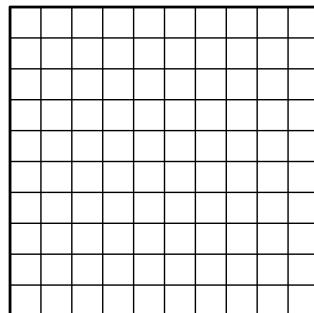
2.2  $0.15 - 0.08$



**Warm-Up**

Show  $0.2 + 0.31$  by shading in the diagram.

What is the value of  $0.2 + 0.31$ ?

**Practice**

1. Here is how three students calculated  $7.2 - 3.67$ . Whose work is correct?

A.

$$\begin{array}{r} 7.2 \\ - 3.67 \\ \hline 3.05 \end{array}$$

B.

$$\begin{array}{r} 07.2 \\ - 3.67 \\ \hline 3.05 \end{array}$$

C.

$$\begin{array}{r} 7.20 \\ - 3.67 \\ \hline 3.53 \end{array}$$

Fill in the blanks on the addition and subtraction problems to make them true.

2.1

$$\begin{array}{r} 1.036 \\ + \boxed{\phantom{0}\phantom{0}\phantom{0}} \\ \hline 4.000 \end{array}$$

2.2

$$\begin{array}{r} 38.60 \\ - 6.75 \\ \hline \boxed{000}.5 \end{array}$$

2.3

$$\begin{array}{r} 241.76 \\ - 2.18 \\ \hline \boxed{000.}8 \end{array}$$

The label on a bag of chocolates states that there are 0.384 pounds of chocolates.

The actual weight of the chocolates is 0.3798 pounds.

- 3.1 Are the chocolates heavier or lighter than the weight stated on the label?    3.2 How much heavier or lighter are the chocolates than stated on the label?

Explain how you know.



## Warm-Up

Determine the value of each expression.

$$20 \cdot 40$$

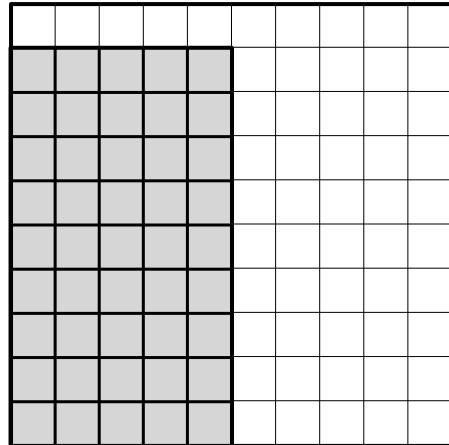
$$200 \cdot 40$$

$$2 \cdot 40$$

$$2 \cdot (0.4)$$

## Practice

- 1.1 Explain why the diagram represents  $(0.5) \cdot (0.9)$ .



- 1.2 What is the value of  $(0.5) \cdot (0.9)$ ?

2. Select **all** the expressions that have the same value as  $(0.05) \cdot (0.6)$ .

$5 \cdot \frac{1}{100} \cdot 6 \cdot \frac{1}{10}$       $5 \cdot 6 \cdot \frac{1}{1000}$       $5 \cdot (0.001) \cdot 6 \cdot (0.01)$      0.03     0.003

3. A student attempted to multiply  $(0.03) \cdot (0.07)$ .

Find the mistake in the student's work.

Then determine the correct value of the expression.

$$0.03 \times 0.07$$

$$\frac{3}{100} \cdot \frac{7}{100}$$

$$\frac{21}{100}$$

$$0.21$$

## Warm-Up

Determine the product of each number and 0.01.

322.1

0.118

1350.1

7.04

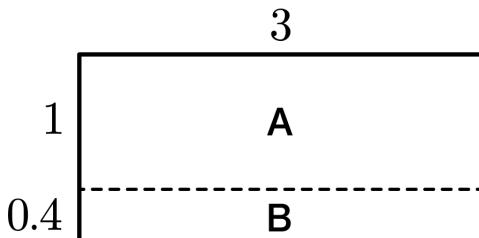
## Practice

Here is a diagram that represents  $3 \cdot (1.4)$ .

- 1.1 Determine the areas of A and B.

$$A =$$

$$B =$$



- 1.2 What is  $3 \cdot (1.4)$ ?

Kala made an error while multiplying  $(5.2) \cdot (2.7)$ .

$$5.2 \cdot 2.7$$

- 2.1 Find the error and explain why it is incorrect.



- 2.2 What is  $(5.2) \cdot (2.7)$ ? Show or explain your reasoning.

$$10 + 0.4 + 3.5 + 1.4 = 15.3$$

3. Draw an area diagram that shows  $(2.5) \cdot (1.4)$ .



## Warm-Up

Determine the value of each expression.

$20 \cdot 5$

$20 \cdot 0.8$

$20 \cdot 0.04$

$20 \cdot 5.84$

## Practice

1.  $3 \cdot 65 = 195$ . Explain how that could be used to find  $(0.03) \cdot (0.65)$ .

2. Maia wrote this expression to help her multiply  $(4.5) \cdot (0.17)$ .

$$45 \cdot 17 \cdot \frac{1}{10} \cdot \frac{1}{100}$$

If  $45 \cdot 17 = 765$ , then what is  $(4.5) \cdot (0.17)$ ?

3. Select **all** of the expressions that have a product of 0.042.

$0.07 \cdot 0.6$       $0.7 \cdot 0.06$       $0.07 \cdot 0.06$       $7 \cdot 0.06$       $2.1 \cdot 0.02$

Determine the value of each expression using any strategy.

4.1  $(5.4) \cdot (2.4)$

4.2  $(1.01) \cdot (3.5)$

## Warm-Up

Determine the value of each expression.

$400 \div 8$

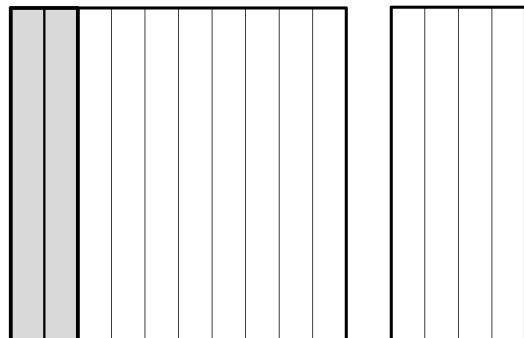
$80 \div 8$

$16 \div 8$

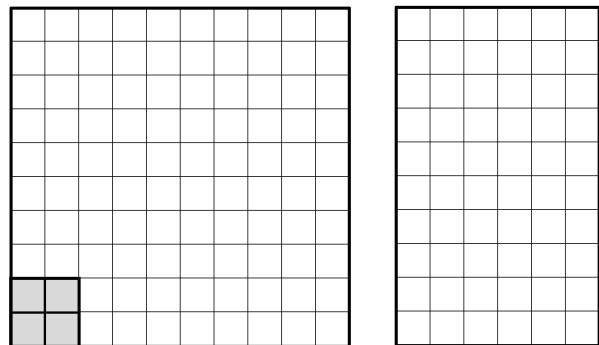
$496 \div 8$

## Practice

1. Determine the value of  $1.4 \div 0.2$ . Use the diagram if it helps you with your thinking.



2. Determine the value of  $1.6 \div 0.04$ . Use the diagram if it helps you with your thinking.



- 3.1 Select **all** of the expressions that have the same value as  $3.5 \div 0.05$ .

$35 \div 5$

$350 \div 5$

$35 \div 0.5$

$\frac{35}{100} \div \frac{5}{100}$

$\frac{35}{10} \div \frac{0.5}{10}$

- 3.2 Write another expression that has the same value as  $3.5 \div 0.05$ .



## Warm-Up

Determine the value of each expression.

$80 \div 4$

$12 \div 4$

$1.2 \div 4$

$81.2 \div 4$

## Practice

Here is a long division calculation of  $4809 \div 3$  that is done incorrectly.

- 1.1 Explain how you know that  $4809 \div 3$  is not 163.

- 1.2 What is  $4809 \div 3$ ?

$$\begin{array}{r} 163 \\ 3 \overline{)4809} \\ 3 \\ \hline 18 \\ 18 \\ \hline 009 \end{array}$$

Mariam is using long division to calculate  $623 \div 7$ .

- 2.1 Mariam starts by dividing 62 by 7.

The first digit of the quotient is 8.

Write the number 8 where you think it belongs.

$$7 \overline{)6 \quad 2 \quad 3}$$

- 2.2 Finish using long division to calculate  $623 \div 7$ .

Use long division to calculate each quotient.

3.1

$$5 \overline{)4 \quad 6 \quad 5}$$

3.2

$$12 \overline{)9 \quad 2 \quad 4}$$

3.3

$$3 \overline{)1 \quad 1 \quad 0 \quad 7}$$



## Warm-Up

Determine the value of each expression.

$300 \div 3$

$60 \div 3$

$12 \div 3$

$372 \div 3$

## Practice

1. Here are two long division problems. Which one represents  $6 \div 10$ ?

A.

$$\begin{array}{r} 1\ 0 \\ 6 \overline{)1\ 0} \end{array}$$

B.

$$\begin{array}{r} 6 \\ 10 \overline{)6} \end{array}$$

Explain your thinking.

- 2.1 Select **all** the expressions that have the same value as  $4.5 \div 0.09$ .

$\frac{45}{100} \div \frac{9}{100}$

$45 \div 9$

$\frac{450}{100} \div \frac{9}{100}$

$450 \div 9$

- 2.2 What is the value of  $4.5 \div 0.09$ ?

Use long division to determine the value of each expression.

3.1  $99 \div 12$

3.2  $39.54 \div 3$

3.3  $199.8 \div 0.8$



## Warm-Up

Determine the value of each expression.

$10\% \text{ of } 43$

$1\% \text{ of } 43$

$4\% \text{ of } 43$

$14\% \text{ of } 43$

## Practice

Jada's family has a weekly income of \$1150.

- 1.1 Jada's family tries to spend no more than 9% of their weekly income on groceries. How much money is this?
  
- 1.2 Jada's family tries to put 12% of their weekly income into a savings account. How much money is this?
  
- 1.3 Jada's family recently had to spend \$184 on a car repair. What percent of their weekly income is this?  

A. 0.16%	B. 6.25%	C. 16%	D. 62.5%
----------	----------	--------	----------

Show or explain your reasoning.

2. Circle the expression that has the greater value.

$7\% \text{ of } 250$

$70\% \text{ of } 25$

They have the same value.

Show or explain your reasoning.

**Unit 6.6, Lesson 1: Practice Problems**

Name \_\_\_\_\_

**Warm-Up**

Fill in each blank to create a true equation.

$7 + \underline{\quad} = 10$

$\underline{\quad} \cdot 5 = 45$

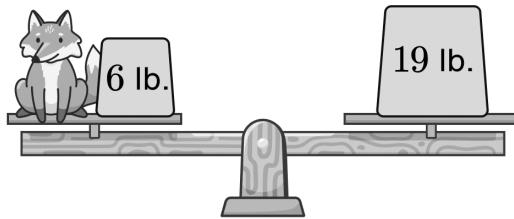
$23 - \underline{\quad} = 11$

$\underline{\quad} \div 4 = 8$

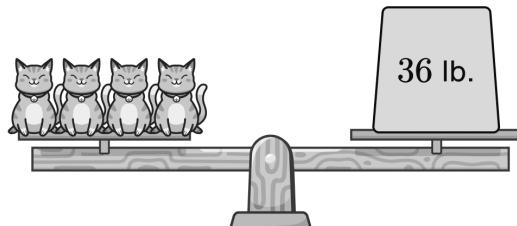
**Practice**

These scales are balanced.

- 1.1 Determine the weight of 1 fox.



- 1.2 Determine the weight of 1 cat.



2. Match each equation to the tape diagram that best represents it.

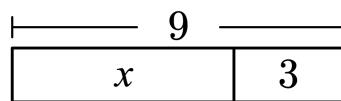
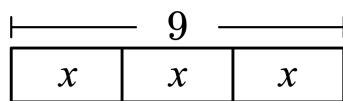
**A.**  $3 \cdot x = 9$

**B.**  $3 + x = 9$

**C.**  $x = 9 - 3$

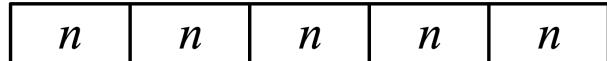
**D.**  $x = 9 \div 3$

**E.**  $x + x + x = 9$



Kwabena is trying to figure out the value of  $n$  in the equation  $5n = 35$ . He begins drawing a tape diagram but isn't sure how to complete it.

- 3.1 Complete Kwabena's tape diagram so it represents the equation
- $5 \cdot n = 35$
- .



- 3.2 Determine the value of
- $n$
- .



# Science Mom Lesson 46

## Unit 6.6, Lesson 2: Practice Problems

Name \_\_\_\_\_

### Warm-Up

Select **all** the true equations.

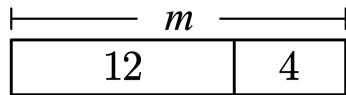
- $5 + 0 = 0$       $15 \cdot 0 = 0$       $1.4 + 2.7 = 4.1$       $\frac{2}{3} \cdot \frac{5}{9} = \frac{7}{12}$       $4 \frac{2}{3} = 5 - \frac{1}{3}$

### Practice

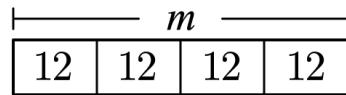
1. Match each equation to a tape diagram.

A. $12 - m = 4$	B. $12 = 4m$	C. $12 + 4 = m$	D. $m \div 4 = 12$
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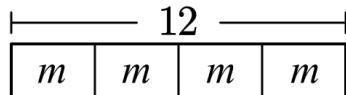
Equation: \_\_\_\_\_



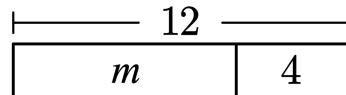
Equation: \_\_\_\_\_



Equation: \_\_\_\_\_

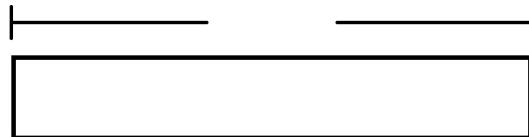


Equation: \_\_\_\_\_



Aaliyah filled a water bottle with 24 ounces of water before school. They drank 15 ounces at lunch. There are  $x$  ounces of water left.

- 2.1 Draw a tape diagram to represent the situation.



- 2.2 Select **all** of the equations that could represent this situation.

- $24 - 15 = x$       $24 + 15 = x$       $x + 15 = 24$       $15x = 24$       $24 \div 15 = x$

- 2.3 For one of the equations you selected above, determine the solution and explain its meaning.

Equation

Solution

Meaning of Solution

**Warm-Up**

Calculate the value of each expression.

$12 + 2.4$

$12 \cdot 2.4$

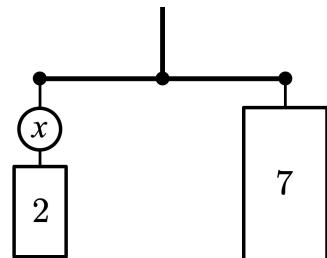
$12 - 2.4$

$12 \div 2.4$

**Practice**

1. Anushka says that to balance this hanger, the value of  $x$  must be 7.  
Do you agree with her?

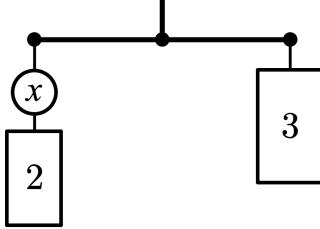
Show or explain your reasoning.



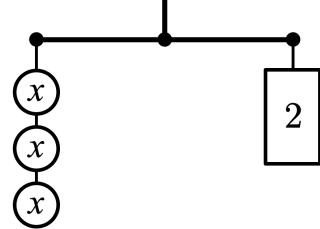
Match each hanger with the equation that it represents. You will have one equation left over.

A. $3 + x = 2$	B. $2 + x = 3$	C. $2x = 3$	D. $3x = 2$
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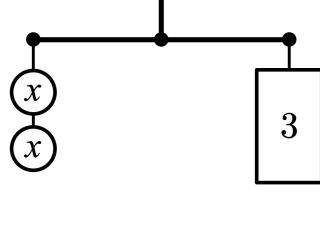
2.1



2.2



2.3



3. Pick two hangers from above and figure out the value of  $x$  that balances each hanger.



## Warm-Up

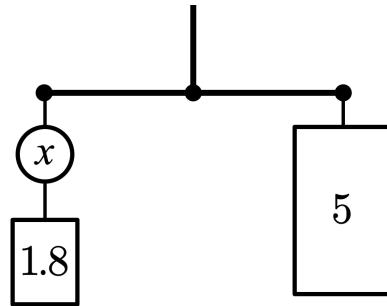
Select **all** the equations that have a solution of  $n = 11$ .

- $2n = 22$       $23 - n = 12$       $4n = 411$       $n \div 1 = 11$       $n - 7 = 3$

## Practice

- 1.1 Determine the value of  $x$  in the equation  $x + 1.8 = 5$ .

Use the hanger if it helps you with your thinking.



- 1.2 Vihaan says the solution to  $x + 1.8 = 5$  is  $x = 6.8$ .

Explain how you know that this is incorrect.

Solve each equation. Draw a hanger or a tape diagram if it helps you with your thinking.

2.1  $4m = 8$

2.2  $\frac{1}{2}a = \frac{5}{8}$

2.3  $10d = 32$

2.4  $w + 5.2 = 17$

2.5  $1.5x = 0.9$

2.6  $24.6 = 6.1 + c$



## Warm-Up

Select **all** the equations that have a solution of  $c = 1.5$ .

- $4c = 41.5$       $150 \div c = 100$       $13.5 - c = 10$       $6c = 9$       $0.2c = 0.3$

## Practice

- 1.1 Anika buys 5 notebooks that contain 60 pages each.

Select **all** the equations that represent the **total number of pages**,  $p$ .

- $p = 60 \div 5$       $5 + 60 = p$       $p = 5 \cdot 60$       $p \div 5 = 60$       $5p = 60$

- 1.2 Tiara buys a pack of paper with 200 pages. She splits the paper equally into 5 binders.

Select **all** the equations that represent the **number of pages in each binder**,  $b$ .

- $b = 200 \div 5$       $200 \div b = 5$       $b = 5 \cdot 200$       $b \div 5 = 200$       $5b = 200$

Complete the table by creating matching equations and situations.

Equation	Situation	Meaning of $x$
2.1 $\frac{1}{2} + x = 4$		
2.2	A plant in Zahra's garden grows 0.8 inches taller each week. After $x$ weeks, the plant has grown 6 inches.	



## Warm-Up

Evaluate the expression  $3m + 5$  for all the values of  $m$ .

$$m = 7$$

$$m = 0.8$$

$$m = \frac{5}{6}$$

$$m = 2.4$$

## Practice

Oranges cost \$1.25 per pound. How much would it cost to buy:

1.1 2 pounds of oranges?

1.2 5 pounds of oranges?

1.3  $x$  pounds of oranges?

You need red and blue ribbon for a craft project. The instructions say that the red ribbon should be 7 inches longer than the blue ribbon. How long should the red ribbon be if the blue ribbon is:

2.1 10 inches?

2.2 27 inches?

2.3  $x$  inches?

3. 35 riders are on a bus, and  $n$  riders get off at the same stop. In this scenario, what does the expression  $35 - n$  represent?

## Warm-Up

Evaluate each expression for  $b = 5$ .

$$3.5b$$

$$6b + 1$$

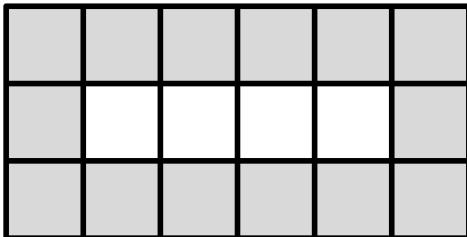
$$\frac{1}{4} + b$$

$$\frac{1}{2}b$$

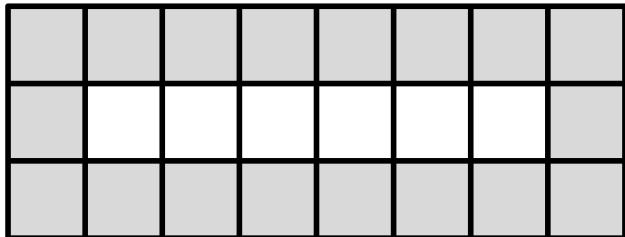
## Practice

For each rectangle, determine how many gray tiles are used to make the border.

1.1

**4-by-1 Rectangle**

1.2

**6-by-1 Rectangle**

- 1.3 Diego says  $2n + 6$  represents the number of gray tiles needed for the border of an  $n$ -by-1 rectangle, like the rectangles above. Explain why his strategy is correct.

- 2.1 Select **all** the expressions that are equivalent to  $2n + 6$ .

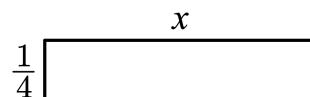
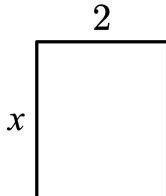
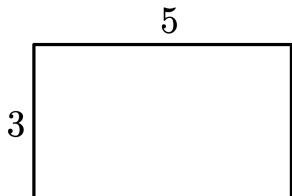
$2 + 6n$       $2(n + 3)$       $n + 3$       $(n + 3) + (n + 3)$       $n + n + 6$

- 2.2 Choose an expression that is **not** equivalent. Explain how you know it is not equivalent.



## Warm-Up

Write an expression to represent the area of each rectangle.



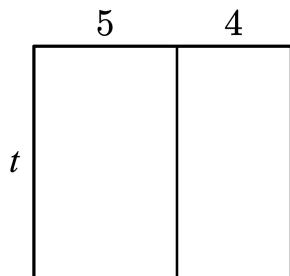
## Practice

1. Select **all** of the expressions that are equivalent to  $4b$ .

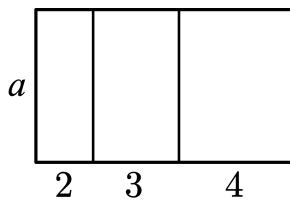
$b + b + b + b$         $b + 4$         $b \cdot b \cdot b \cdot b$         $2b + 2b$

2. Select **all** of the expressions that represent the area of the rectangle:

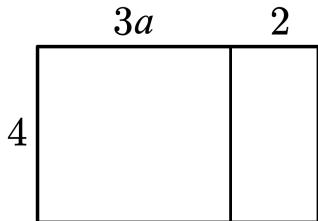
$t + 5 + 4$         $5t + 4t$         $9t$   
  $4 \cdot 5 \cdot t$         $(5 + 4)t$



3. Zola wrote the area of the rectangle as  $2a + 3a + 4a$ . Amir wrote the area as  $(2 + 3 + 4)a$ . Explain why they are both correct.



4. Write two equivalent expressions that could be used to represent the area of the rectangle.



Expression 1

Expression 2



## Warm-Up

Determine the greatest common factor (GCF) for each pair of numbers.

6 and 8

10 and 50

14 and 21

## Practice

1. Select **all** of the expressions that are equivalent to  $4x + 8$ .

$4(x + 2)$

$(4 + 8)x$

$2(2x + 4)$

$2(2x + 6)$

Complete the table by writing expressions that represent the area of each rectangle.

	Area Model	Product of Two Factors	Sum of Two Terms
2.1			$8 + 2x$
2.2		$5(m + 3)$	
2.3			

3. Latifa and Joel are trying to rewrite  $8y + 24$  as a product of two factors. Are Latifa's and Joel's expressions both equivalent to  $8y + 24$ ?

Explain your thinking.

Latifa's Expression  
 $8(y+3)$

Joel's Expression  
 $2(4y + 12)$



## Warm-Up

Determine the value of each expression.

$3 + 3 + 3 + 3$

$3 \cdot 3 \cdot 3 \cdot 3$

$4(3)$

$3^4$

## Practice

1. Complete the table.

Expression With Exponent	Expression Without Exponent
$3^5$	$3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$
	$2 \cdot 2 \cdot 2 \cdot 2$
$4^3$	
$5^1$	
	$\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2}$
$(\frac{1}{3})^4$	

2. Select **all** the expressions that are equal to 16.

$8^2$

$2^4$

$2^8$

$4^2$

$16^1$

3. Here are four expressions. Circle two expressions that have the same value.

$6 + 6 + 6$

$6^3$

$3^6$

$3 \cdot 6$

Explain how you know they are equivalent.

## Warm-Up

Determine the value of each expression.

$$3(5)$$

$$3(5) + 2$$

$$3(5 + 2)$$

$$3(2 + 5)$$

## Practice

Here are three different figures.

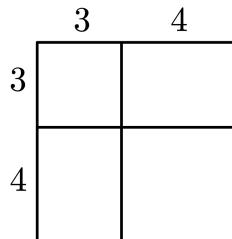


Figure A

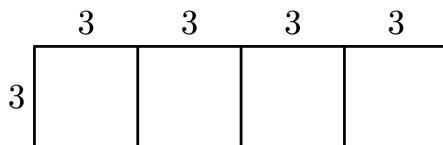


Figure B

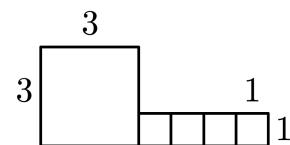


Figure C

- 1.1 Match each figure with an expression that describes its area.

$$4 \cdot 3^2$$

Figure \_\_\_\_\_

$$3^2 + 4$$

Figure \_\_\_\_\_

$$(3 + 4)^2$$

Figure \_\_\_\_\_

- 1.2 Calculate the value of each of the expressions from above.

$$4 \cdot 3^2$$

$$3^2 + 4$$

$$(3 + 4)^2$$

2. Here are three more expressions. Calculate their values.  
Draw a picture if it helps you with your thinking.

$$5 + 4^2$$

$$(3 + 2)^3$$

$$2^2 \cdot 5$$

**Warm-Up**

Determine the value of each expression.

$$4 \cdot 3 + 2$$

$$4(3 + 2)$$

$$3 + 2 \cdot 4$$

$$3(2 + 4)$$

**Practice**

- 1.1 Jalen built a tower out of 10 cubes.

Each cube is 5 inches on a side.

Which expression represents the volume of the tower?

- A.  $5(10)^3$     B.  $10(5)^3$     C.  $10 + 5^3$     D.  $5 + 10^3$

- 1.2 Calculate the volume of the tower.



Determine the value of each expression when  $x = 3$ .

2.1  $x^2$

2.2  $4x^2$

2.3  $2^x$

2.4  $4 + 2^x$

Determine the value of each expression when  $x = 2$ .

3.1  $x^4$

3.2  $4x^3$

3.3  $1 + 3x^3$

3.4  $\left(\frac{1}{3}\right)^x$

## Warm-Up

Determine the value of each expression.

$$3^2$$

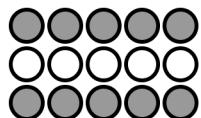
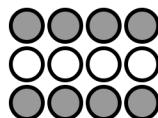
$$2^3$$

$$2^5$$

$$2^1$$

## Practice

1. Here is a pattern of circles. The *independent variable* is  $c$ , the number of circles along the bottom.



List 2–3 *dependent variables* you could count or measure, and assign each variable a letter.

$$c = 2$$

$$c = 4$$

$$c = 5$$

Karima wants to help a community kitchen figure out how much broth they need for their famous chicken soup. Each serving of soup uses 2 cups of broth.

$$s = \text{number of servings of soup}$$

$$b = \text{number of cups of broth}$$

- 2.1 Complete the table.

- 2.2 Which variable is the *independent variable*?

Explain your thinking.

- 2.3 Karima and her sister each wrote an equation to help them understand the relationship.

$$\text{Karima: } s = 2b$$

$$\text{Karima's sister: } b = 2s$$

Who do you agree with? Explain your reasoning.

$s$	$b$
1	
2	
5	
	16

**Warm-Up**

Determine the value of each expression.

$$3^3$$

$$2(3)^3$$

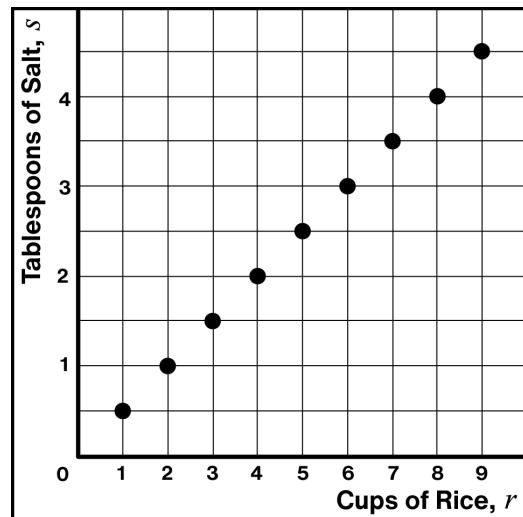
$$3^3 + 4$$

$$2 \cdot 3^3 + 4$$

**Practice**This graph shows the number of tablespoons of salt,  $s$ , needed to make  $r$  cups of rice.

- 1.1 Complete the table to reflect some of the values on the graph.

Cups of Rice, $r$	Tablespoons of Salt, $s$
1	$\frac{1}{2}$
4	
	3



- 1.2 What does the point (8, 4) mean in this situation?
- 

- 1.3 Which equation represents the relationship between the number of tablespoons of salt,  $s$ , and the number of cups of rice,  $r$ ?

A.  $r = \frac{1}{2}s$

B.  $s = 2r$

C.  $s = \frac{1}{2}r$

D.  $s = \frac{1}{2} + r$

Explain how you know your equation is correct.

**Warm-Up**

Determine the value of each.

$$25\% \text{ of } 40$$

$$30\% \text{ of } 60$$

$$45\% \text{ of } 90$$

**Practice**

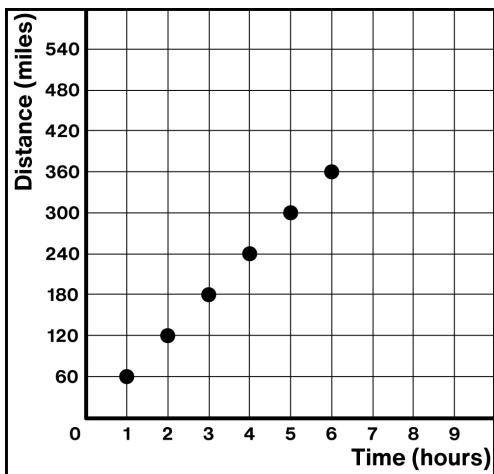
Melissa is selling cookies for \$1.50 each.

- 1.1 Write an equation that represents how much money Melissa earns,  $m$ , for selling a number of cookies,  $c$ .

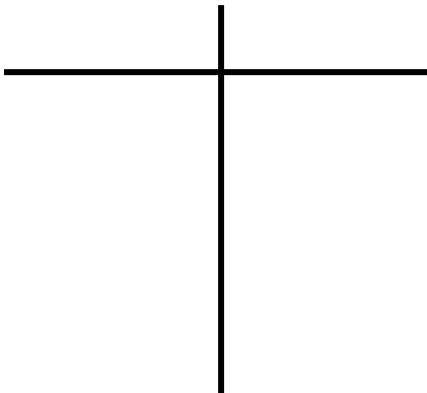
- 1.2 Complete the table that represents this situation.

$c$	$m$
2	
4	
	\$16.50
	\$22.50

This graph represents the distance a car drove,  $d$ , over time,  $t$ .



- 2.1 Create a table to represent the points on the graph.



- 2.2 Nathan determined that the equation  $d = 60t$  represents this situation. Explain how the parts of his equation relate to the situation.



## Warm-Up

Select **all** the equations that have a solution of  $n = 3$ .

- $10n = 103$       $5n = 15$       $\frac{1}{4} + n = \frac{13}{4}$       $n \div 2 = 6$       $\frac{1}{3}n = 3$

## Practice

1. Match each equation to the table that it represents.

A. $p = n + 2$	B. $p = \frac{1}{2}n$	C. $p = 2n$
----------------	-----------------------	-------------

$n$	$p$
10	20
20	40
100	200

$n$	$p$
10	12
20	22
100	102

$n$	$p$
10	5
20	10
100	50

Riya's biking app says that she rides at a speed of 5 miles per hour.

- 2.1 At this speed, how far does Riya ride in 1 hour?

- 2.2 At this speed, how far does Riya ride in 3 hours?

- 2.3 Write an equation for the relationship between Riya's distance biked,  $d$ , and time,  $t$ .

- 2.4 Riya's speed last week could be represented by the equation  $d = 3t$ . What can you say about last week's speed compared to this week's speed? Explain your thinking.



## Warm-Up

Determine the value of  $x$  that makes each equation true.

$$2 \cdot x = 7$$

$$60 \cdot x = 6$$

$$12 \cdot x = 48$$

$$x \cdot \frac{1}{20} = 1$$

$$x =$$

$$x =$$

$$x =$$

$$x =$$

## Practice

Complete each table so that the relationship is proportional.

1.1

$x$	$y$
30	3
120	
	10

1.2

$x$	$y$
1	1.5
3	
	12

1.3

$x$	$y$
15	45
1	
	0

1.4

$x$	$y$
0.2	1
1	
	20

Entrance to a state park costs \$6 per vehicle, plus \$2 per person.

2.1 Complete the table.

2.2 How might you determine the entrance cost for a bus with 50 people?

2.3 Is the relationship between the number of people and the total entrance cost a **proportional relationship**?

Explain how you know.

Number of People in Vehicle	Total Cost (dollars)
2	
3	12
4	
10	

## Warm-Up

Circle **all** of the ratios that are equivalent to  $4 : 7$ .

$8 : 15$

$16 : 28$

$7 : 4$

$20 : 35$

## Practice

When Deven makes chocolate milk, he mixes 2 cups of milk with 3 tablespoons of chocolate syrup. Here is a table that shows how to make batches of different sizes.

- 1.1 Are cups of milk and tablespoons of chocolate syrup in a proportional relationship?  
Explain how you know.

Milk (cups)	Chocolate Syrup (tbsp.)
2	3
8	12
1	$\frac{3}{2}$
10	15

- 1.2 What is the scale factor from the first row to the second row in the table?

- 1.3 What is a constant of proportionality for this relationship?

Where can you see this constant of proportionality in the table?

When you mix two colors of paint in equivalent ratios, the resulting color is always the same.

- 2.1 Complete the table so that each row makes the same shade of purple. In the last row, make up a new pair of numbers.

Explain how you know they will make the same shade of purple.

- 2.2 What is the constant of proportionality for this relationship?

What does it represent?

Blue (cups)	Red (cups)
2	6
1	



## Warm-Up

Find each quotient.

$$640 \div 100$$

$$640 \div 50$$

$$640 \div 25$$

$$64 \div 25$$

## Practice

Each table represents a proportional relationship. For each table, find the constant of proportionality and write an equation that represents the relationship.

1.1

$s$	$P$
2	8
3	12
5	20
10	40

1.2

$d$	$C$
2	6.28
3	9.42
5	15.7
10	31.4

Constant of proportionality:

Equation:  $P =$

Constant of proportionality:

Equation:  $C =$

A plane flew at a constant speed between Denver and Chicago. It took the plane 1.5 hours to fly 915 miles.

2.1 Complete the table.

2.2 How far does the plane fly in one hour?

2.3 How far would the plane fly in  $t$  hours at this speed?

2.4 If  $d$  represents the distance that the plane flies at this speed for  $t$  hours, write an equation that relates  $d$  and  $t$ .

2.5 How far would the plane fly in 10 hours at this speed?  
Explain or show your reasoning.

Time (hours)	Distance (miles)
1	
1.5	915
2	
2.5	
$t$	