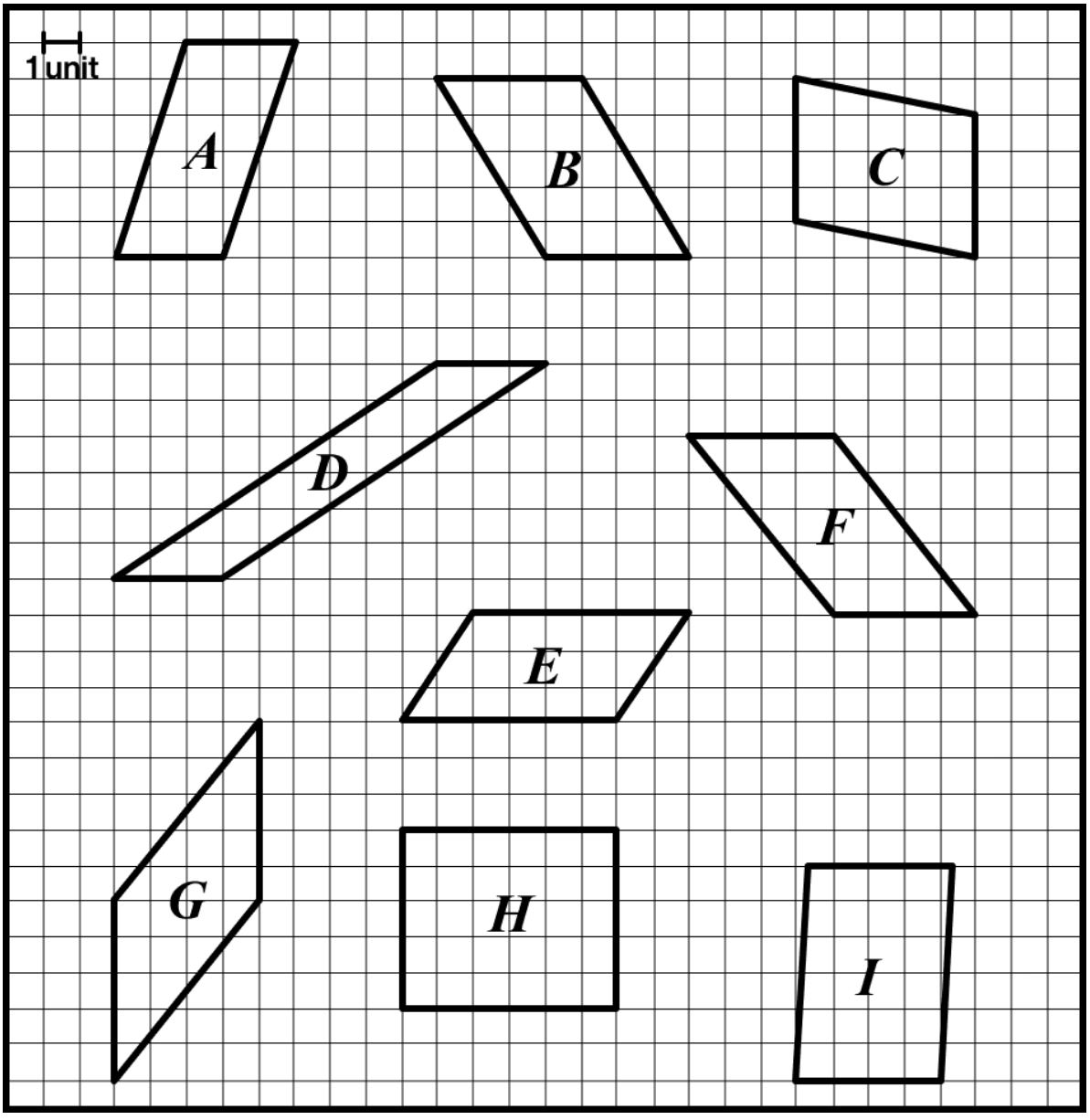
Unit 6.1, Lesson 3: Exploring Parallelograms Name(s) _____

Activity 1: Area Strategies

Use any strategy to determine the area of as many of these parallelograms as you can. Use the workspace below if it helps you with your thinking. Then record each area in the table.

Parallelogram	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*
Area (sq. units)									



Are You Ready for More?

On graph paper, draw a parallelogram with an area of 36 square units that is not a rectangle .

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Unit 6.1, Lesson 3: Exploring Parallelograms Name(s) _____

Activity 1 Synthesis

1. Describe your strategy for determining the area of parallelogram B.

2. List other parallelograms your strategy would work for.

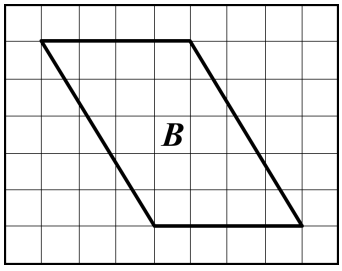
3. Describe or draw a strategy you heard from a classmate that was different from yours.

Activity 2: Deja's and Gabriela's Strategies

Deja and Gabriela used different strategies to determine the area of parallelogram B.

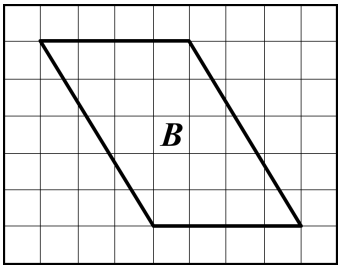
1. After watching the animation, describe their strategies using words and the drawings below.

Deja's Strategy



How did Deja calculate the area?

Gabriela's Strategy



How did Gabriela calculate the area?

2. Discuss the following with your group:
   - How are Deja's and Gabriela's strategies similar? How are they different?
   - How are these strategies similar to the strategies your class used in Activity 1?
   - Are there any parallelograms from the supplement that these strategies won't work for?
   - Design a new parallelogram that Deja or Gabriela might find difficult.

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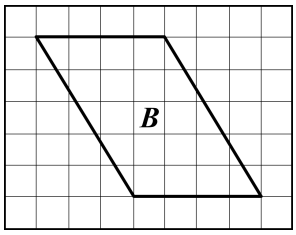
Unit 6.1, Lesson 3: Exploring Parallelograms Name(s) _____

Activity 3: Base, Height, and Area

1. Write what you think the base and height mean.

   Base:

   Height:



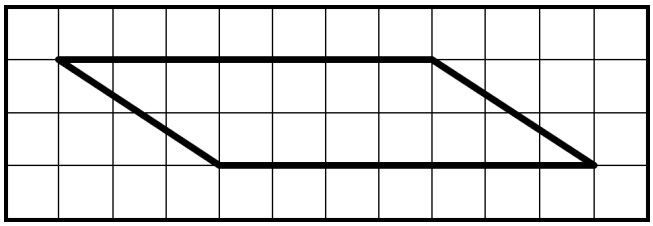
Base: 4 units
Height: 5 units

2. Record the base, height, and area of each of the parallelograms in the table.

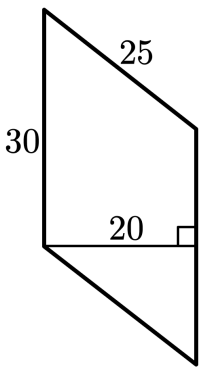
Parallelogram	Base (units)	Height (units)	Area (sq. units)
A			
B	4	5	20
C			
D			
All parallelograms	b	h	

3. Write a formula that can be used to calculate the area of all parallelograms.

4. Use your formula to calculate the area of these parallelograms. All measurements are in units.



Area: _____ square units



Area: _____ square units

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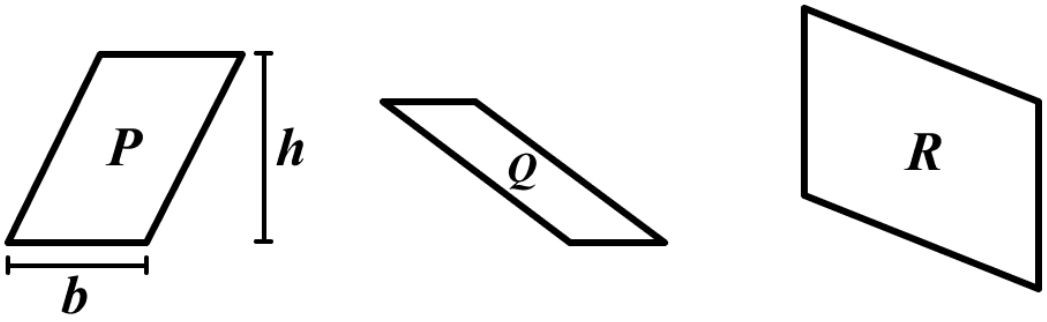
Unit 6.1, Lesson 3: Exploring Parallelograms Name(s) _____

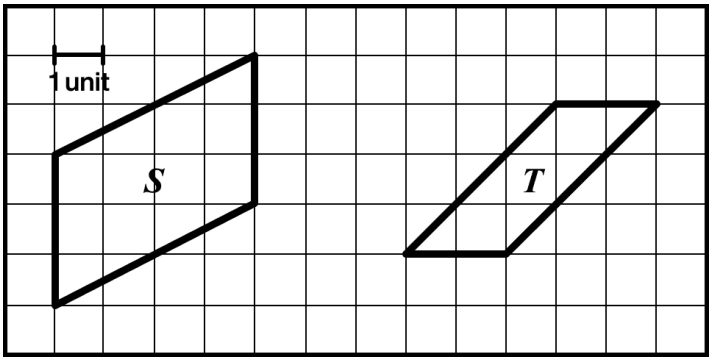
Lesson Synthesis



1. Draw and label segments showing a base and a height for parallelograms Q and R.

2. Explain how you can use a base and height of a parallelogram to calculate its area.

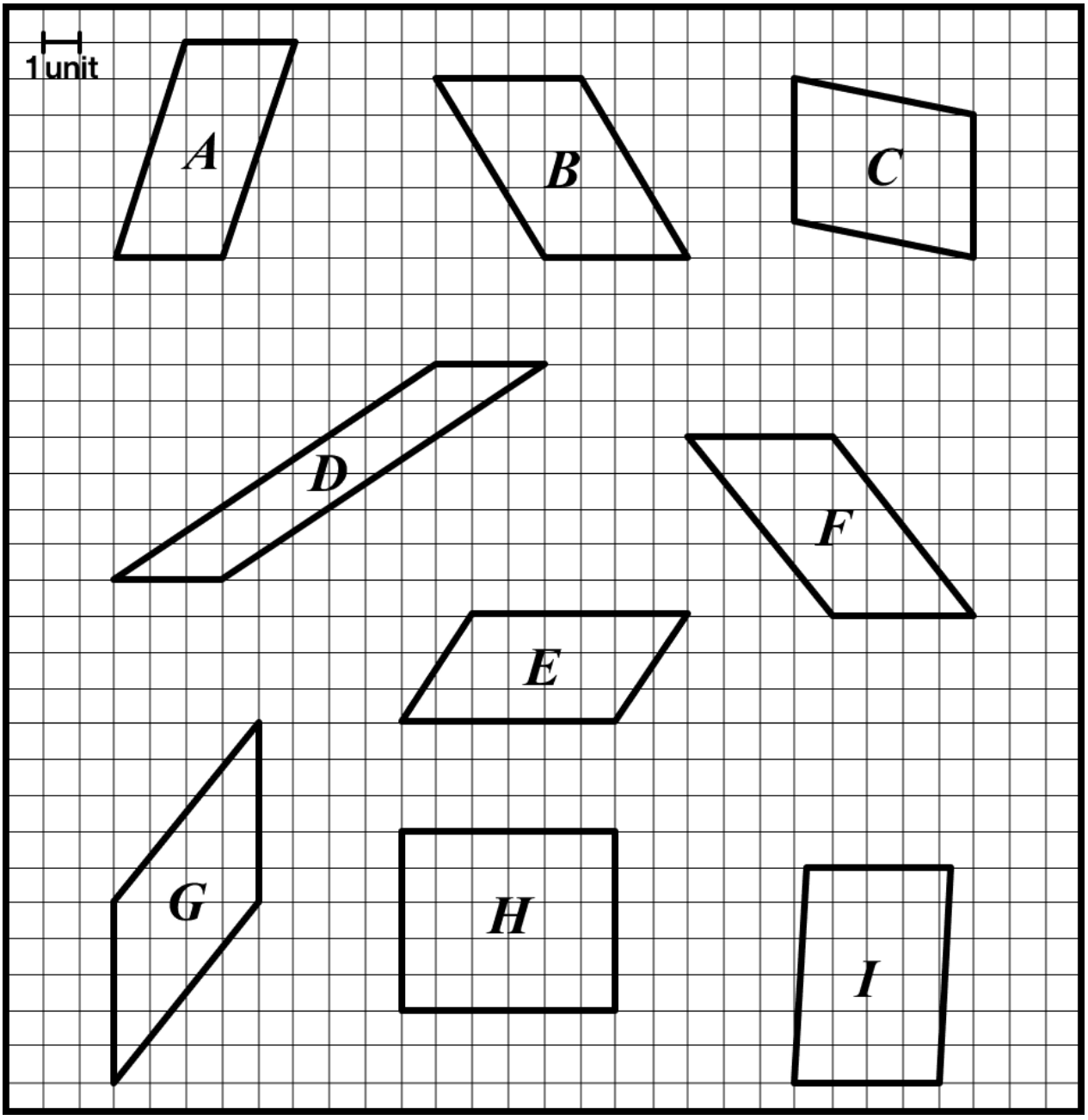
Cool-Down



Record the base, height, and area of each parallelogram in the table.

Parallelogram	Base (units)	Height (units)	Area (sq. units)
S			
T			

Unit 6.1, Lesson 3: Supplement Name(s) _____



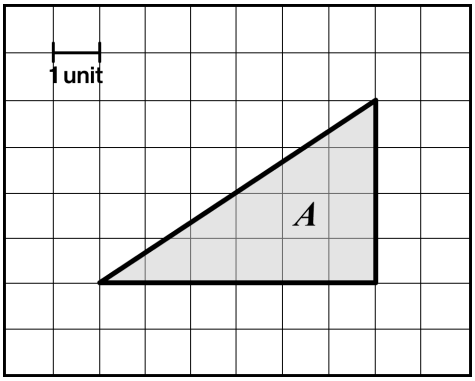
Unit 6.1, Lesson 5: Exploring Triangles Name _____

Warm-Up

1. Use any strategy to determine the area of triangle A.

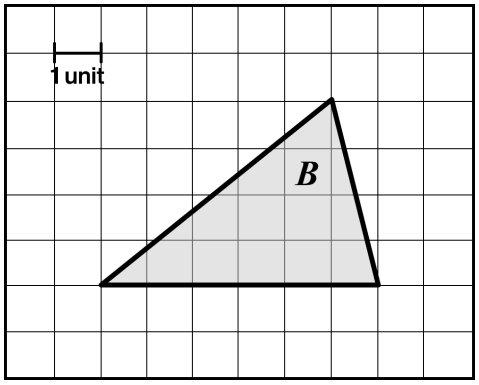
   Area = _____ square units

2. Show or describe the strategy you used.

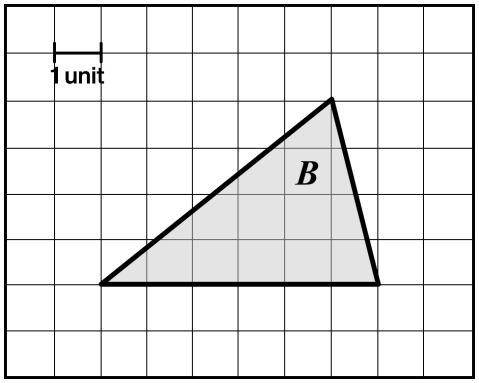


Activity 1: Area Strategies

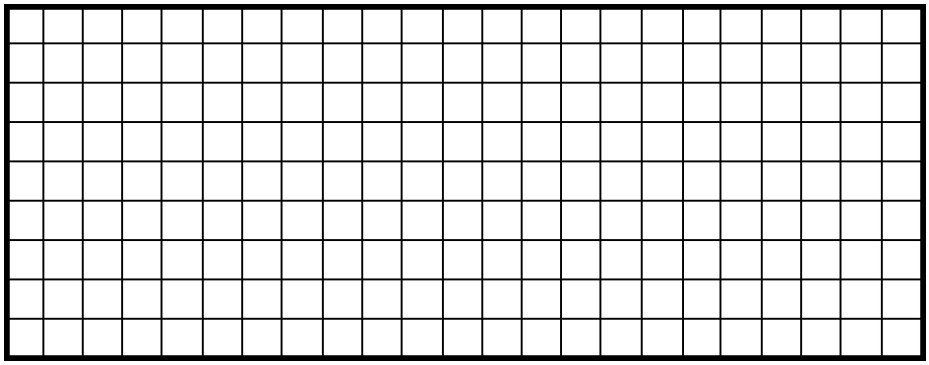
1. Use any strategy to determine the area of triangle B.



2. Describe or show a different way to determine the area of triangle B.



Use this space to describe or draw any other strategies you think of or learn about.



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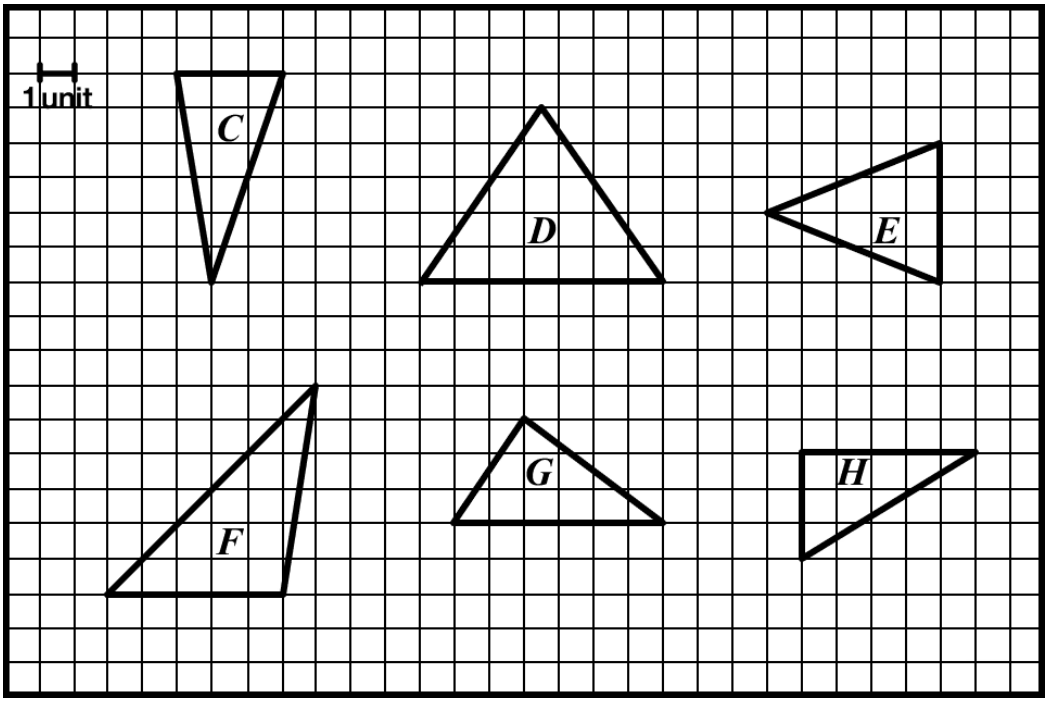
Unit 6.1, Lesson 5: Exploring Triangles Name _____

Activity 2: Lots of Triangles

1. Determine the area of as many triangles as you can. Record your answers in the table.

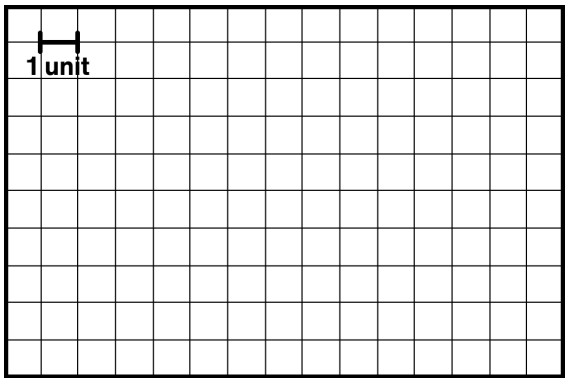
Triangle	C	D	E	F	G	H
Area (sq. units)						

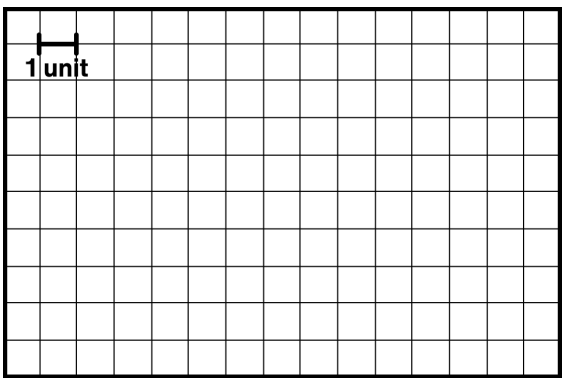


2. Describe the strategy that was most helpful to you. Were there any triangles for which it didn't work?

Are You Ready for More?

Draw two different triangles that each have an area of 18 square units.





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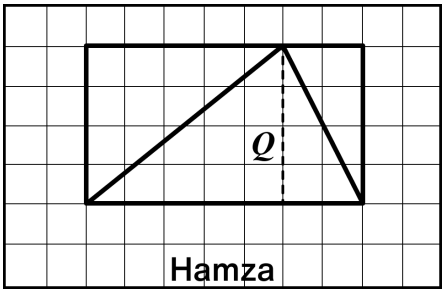
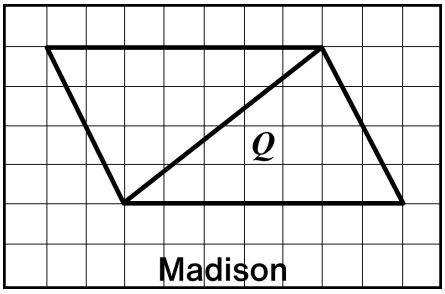
Unit 6.1, Lesson 5: Exploring Triangles Name _____

Lesson Synthesis



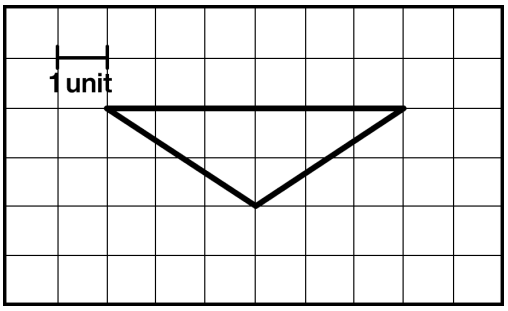


Hamza and Madison used different strategies to determine the area of triangle Q. They both got an answer of 14 square units.

Describe one student's strategy and why their answer is correct.

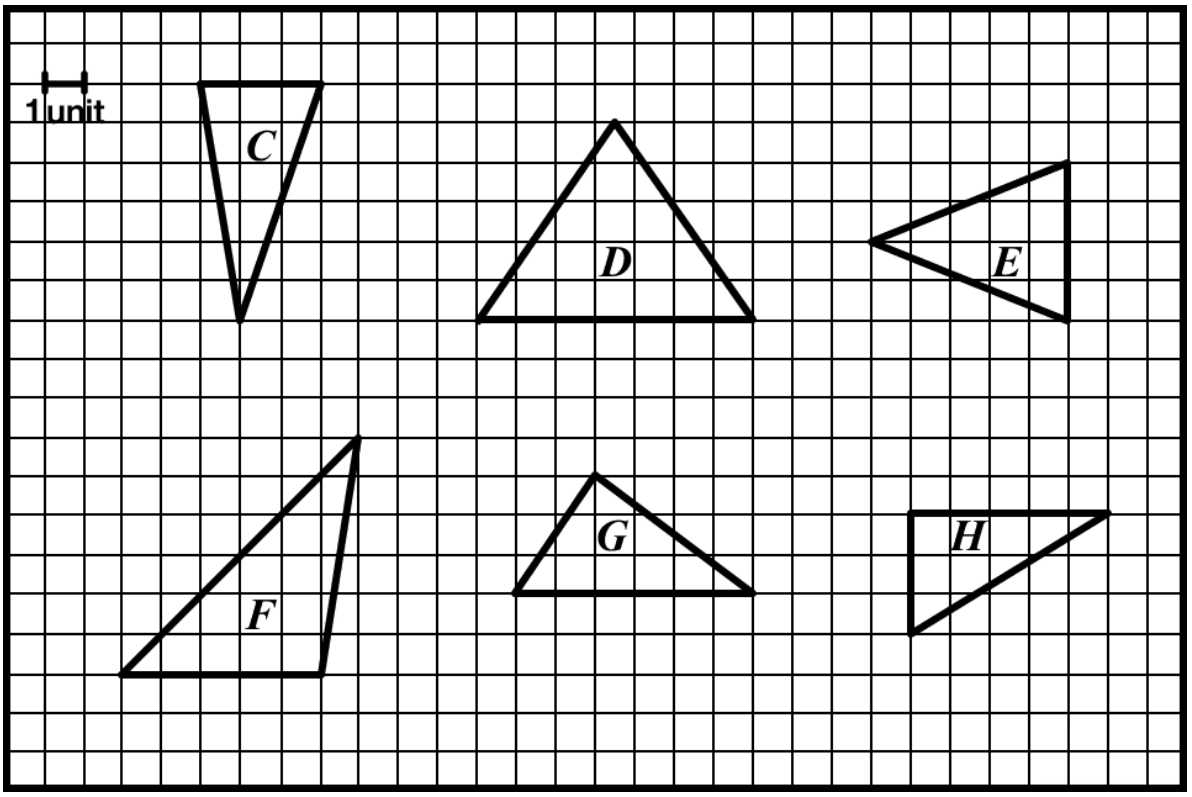
Cool-Down

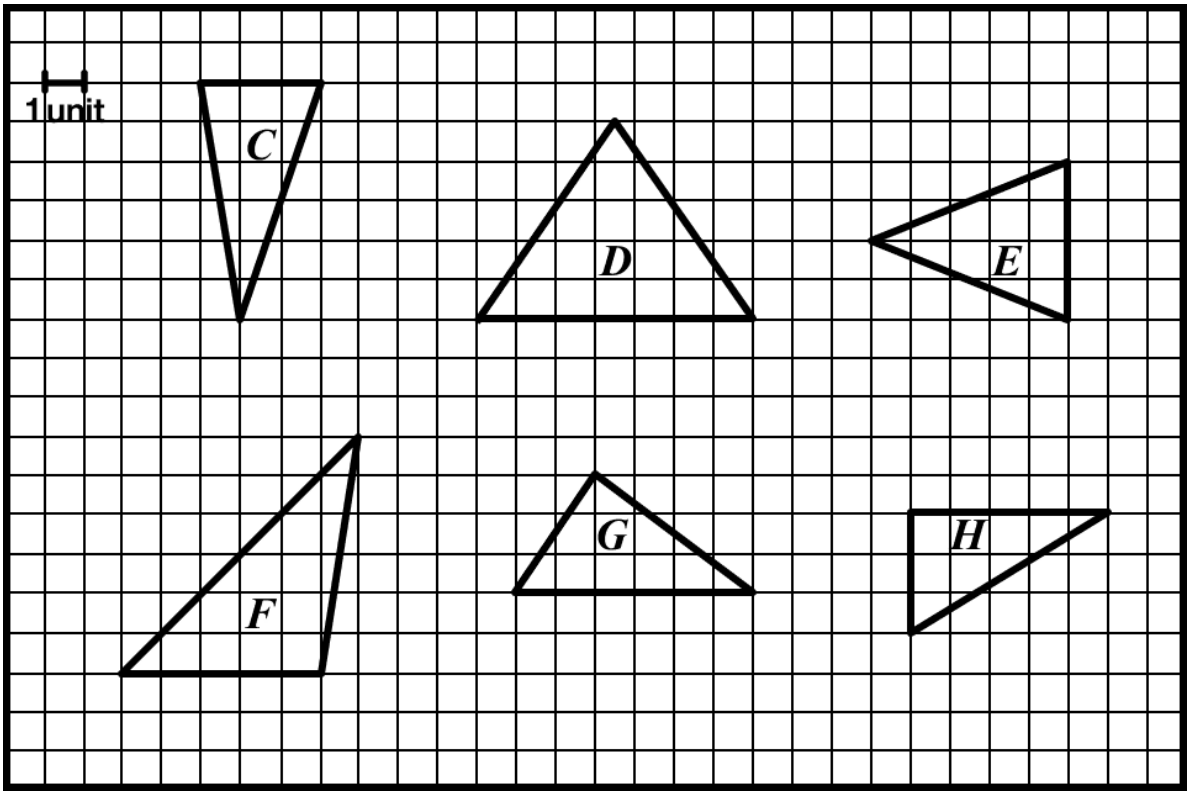
1. Determine the area of this triangle.



2. Show or describe the strategy you used.

Unit 6.1, Lesson 5: Supplement





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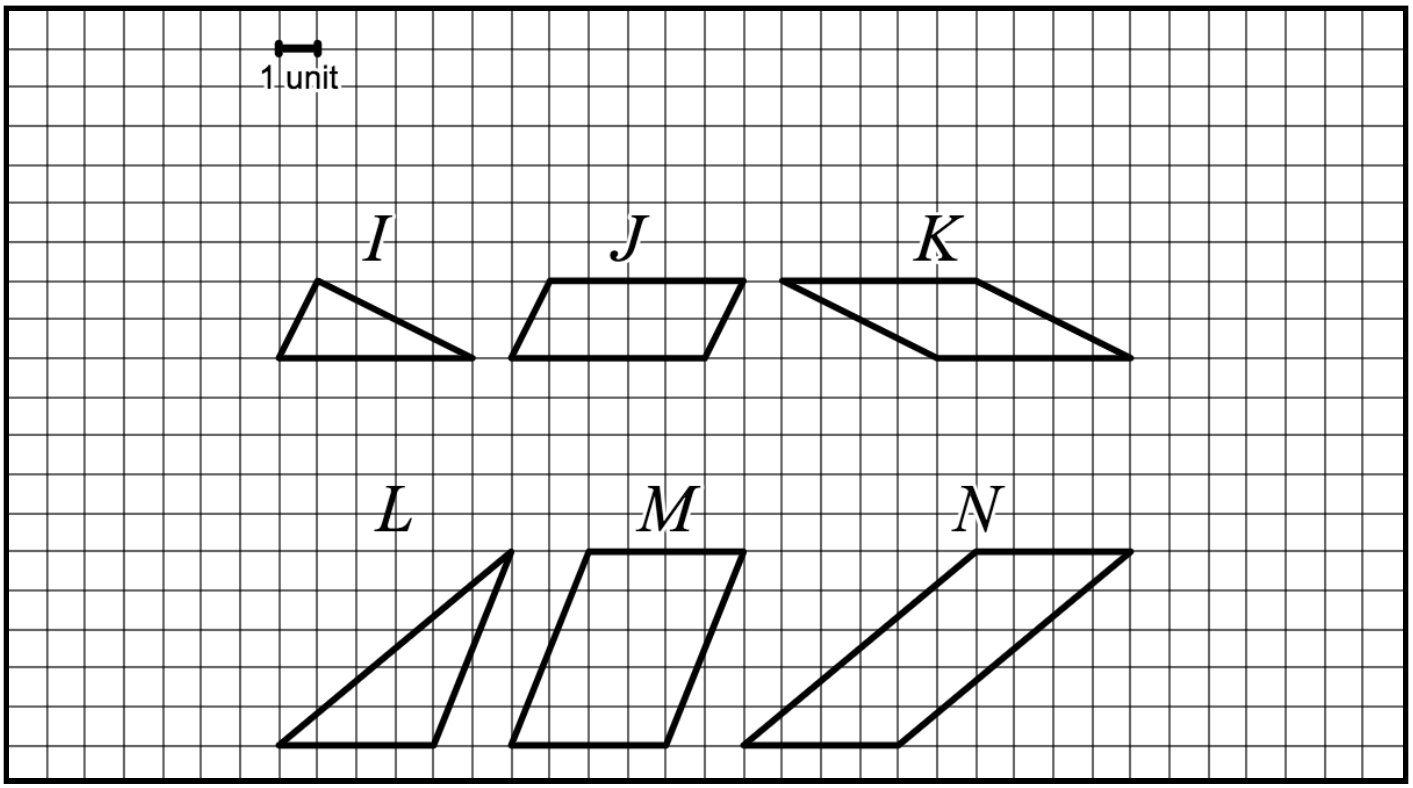
Science Mom Lesson 6

Unit 6.1, Lesson 6: Supplement

Name _____



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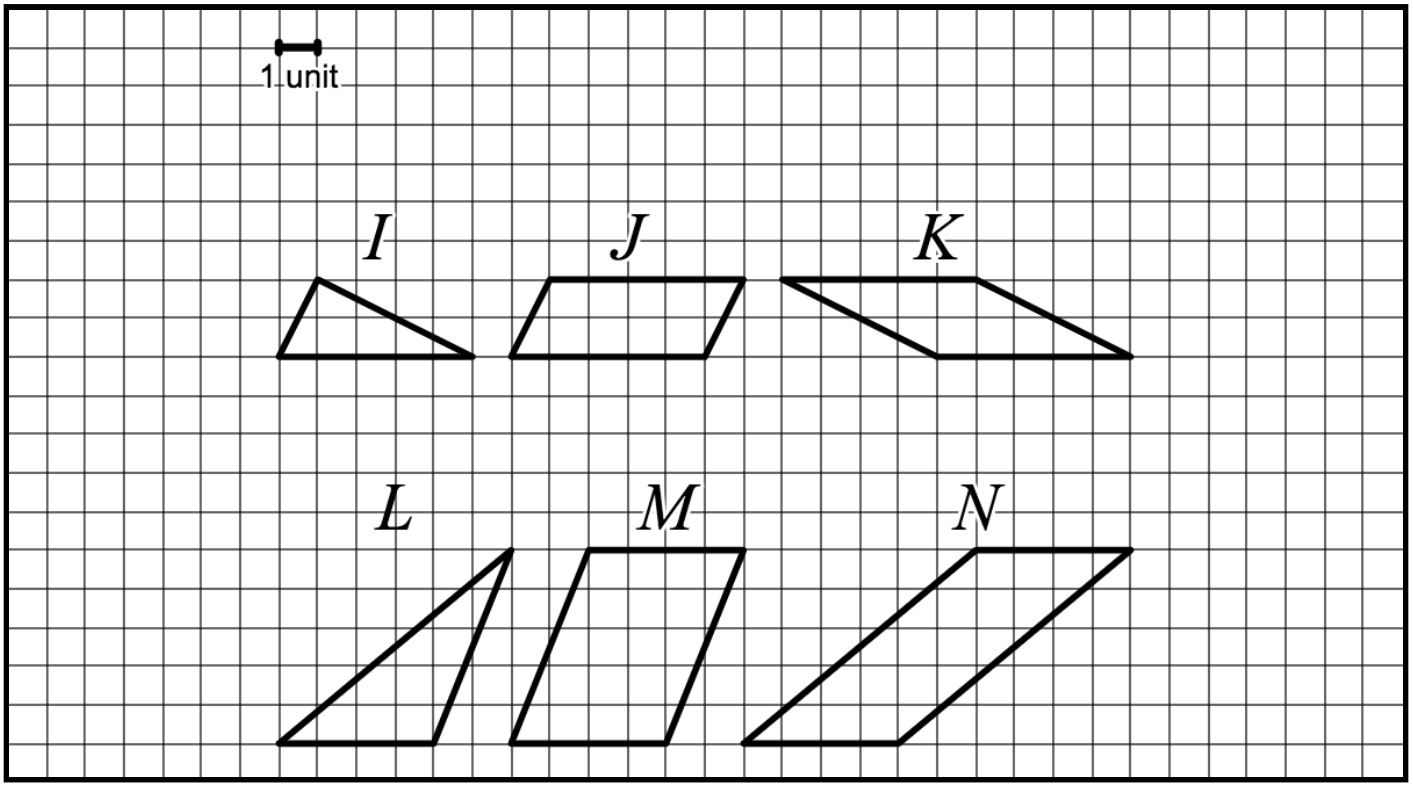
Unit 6.1, Lesson 6: Supplement

Name _____

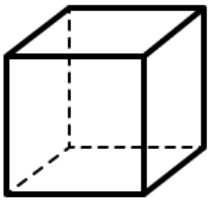


Unit 6.1, Lesson 11: Nothing But Nets Name _____

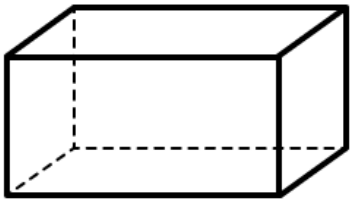
Activity 1: Name Them

Here are the polyhedra from the warm-up.

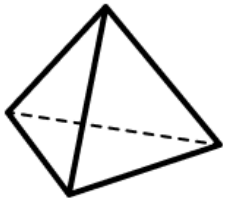
A.



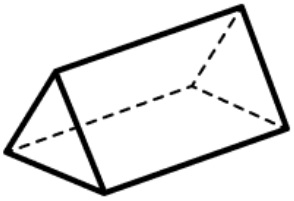
B.



C.



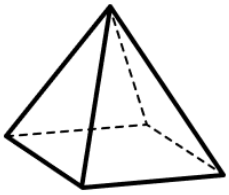
D.



1. Match each polyhedron name with a letter.

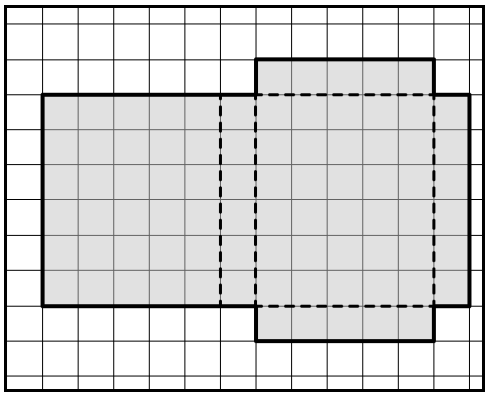
Name	Letter	Base Shape
Triangular prism		
Triangular pyramid		
Square prism		
Rectangular prism		

2. What is the name of this polyhedra?



Activity 2: Make Them

Polyhedron A _____ Surface area: _____ square units
(Name)



Calculate the surface area and show your thinking.

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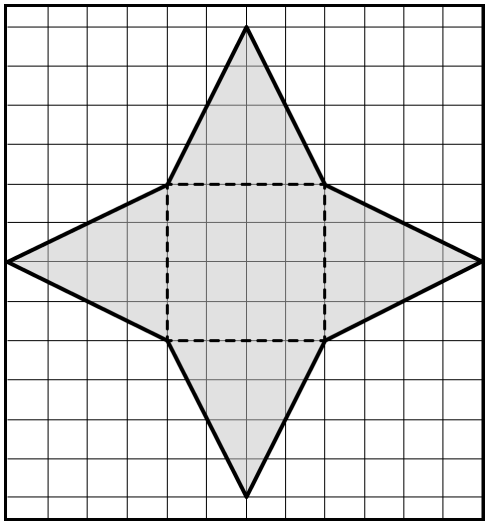
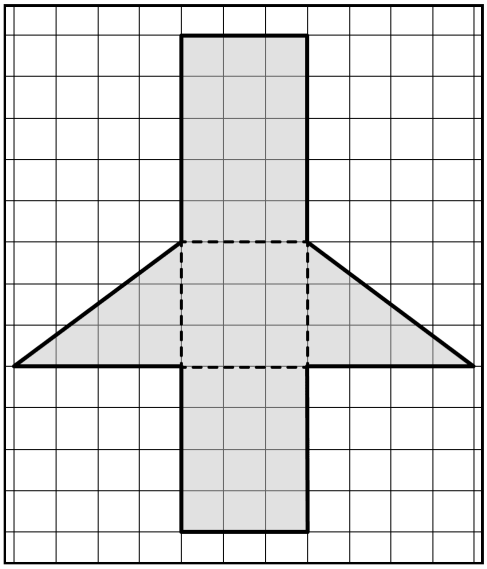
Unit 6.1, Lesson 11: Nothing But Nets Name _____

Polyhedron B _____ Surface area: _____ square units
(Name)



Calculate the surface area and show your thinking.

Polyhedron C_____ Surface area: _____ square units
(Name)



Calculate the surface area and show your thinking.

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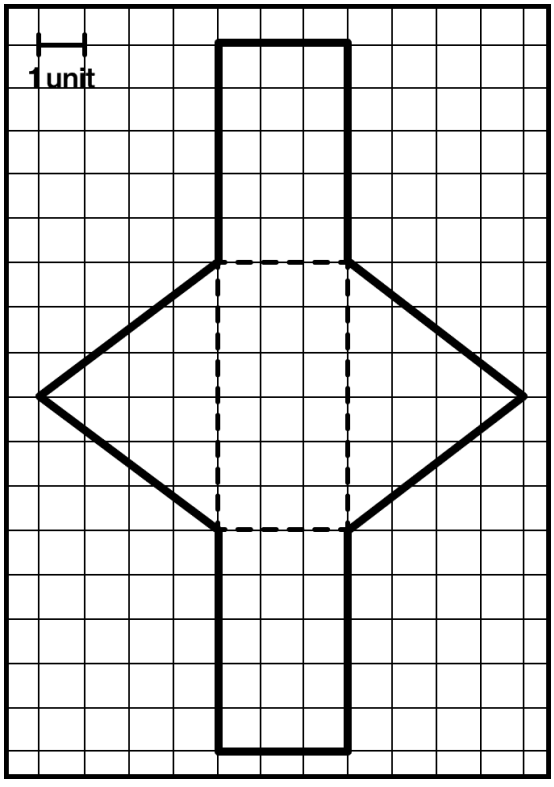
Unit 6.1, Lesson 11: Nothing But Nets Name _____

Lesson Synthesis

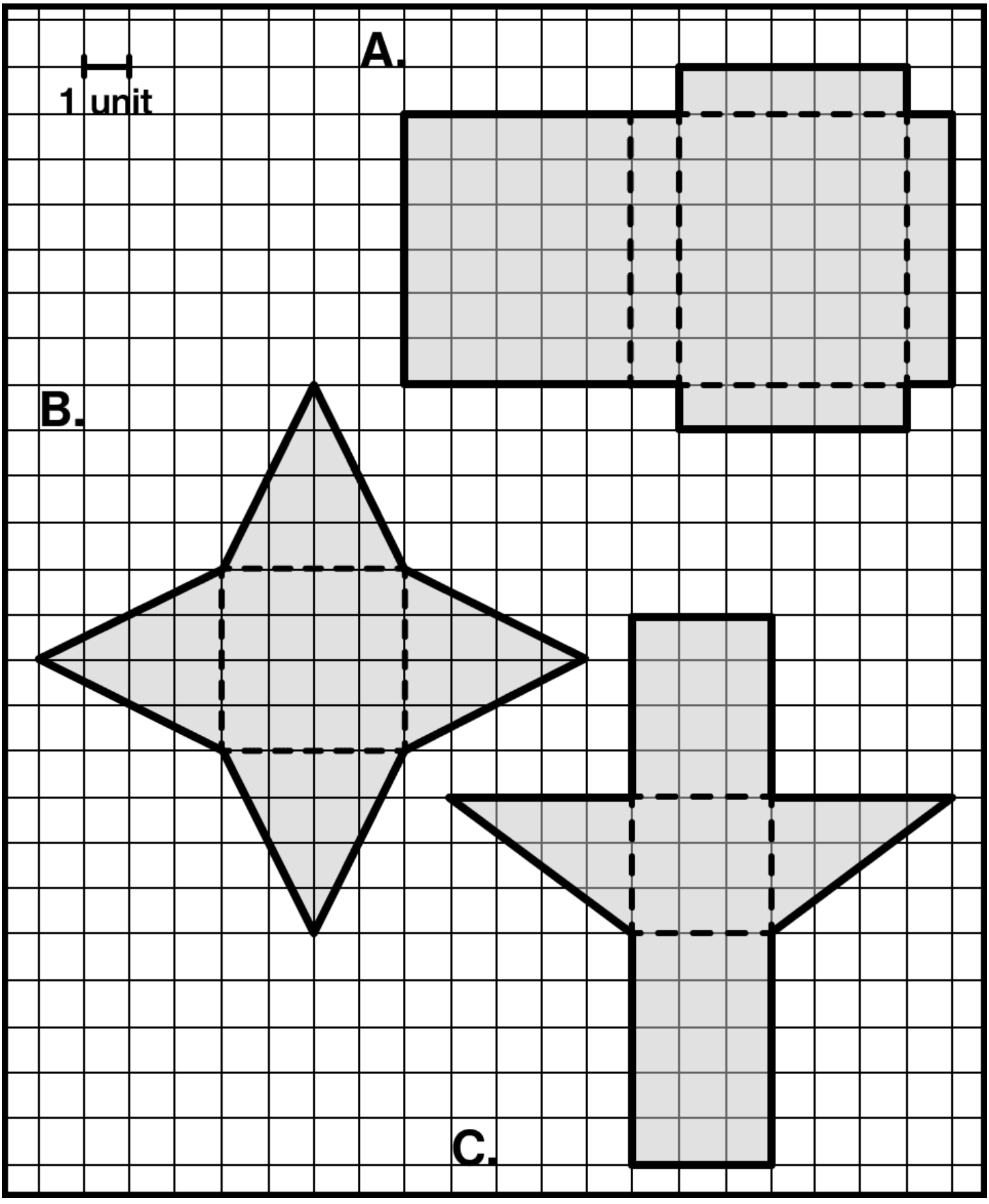
How can a net help you calculate the surface area of a polyhedron?

Cool-Down



1. What polyhedron does this net create when folded?

2. What is the surface area of this solid? Show your reasoning.


1 unit
A.
B.
C.

Unit 6.1, Lesson 13: Take It To Go Name(s) _____

Activity 1: Design a Container

DeAndre's restaurant will serve sandwiches, salads, and single slices of pizza. He needs to design take-out containers for each item.

Your task is to:

- Design a take-out container for one of the food items.
- Estimate the amount of material needed to make your container.

Use the information below to create and justify your design.

Sandwich	Salad	Single Slice of Pizza
Sandwich is roughly $4 \times 4 \times 2$ in.	Salad is roughly 120 cubic in.	Slice is roughly the shape of a triangle with a height of 8 in. and a base of 5 in.

1. Circle the food item you will design a container for.

   Sandwich **Salad** **Pizza**

2. Design your container. Describe or draw a 3-D sketch of how you want your container to look. Be sure to include all the necessary measurements.

3. Sketch a pattern for your container. Be sure to include all the necessary measurements.

4. Calculate about how much material you'll need to create your container.

Activity 2: Make It!

1. Share your pattern with a partner. Discuss how you might improve your patterns.

2. Make the adjustments to your pattern that you and your partner discussed.

3. Draw your pattern onto the paper your teacher provided using the measurements you designed. Cut out and fold your pattern to create your container.

Are You Ready for More?

Take-out containers can be made out of different materials. Research two different kinds of materials. Write a pitch to DeAndre about which material(s) he should use for his take-out containers and why.

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Unit 6.1, Lesson 13: Take It To Go Name(s) _____

Lesson Synthesis

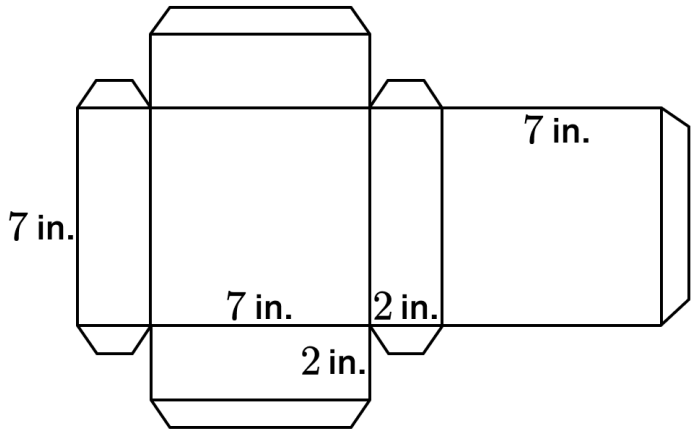
1. How was surface area related to the work you did today?

2. Now that you have seen your classmates' designs, what would you have done differently if you had more time?

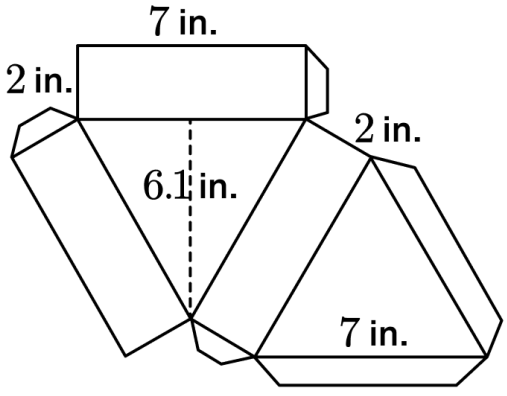
Cool-Down

Here are two patterns of take-out containers.

Pattern #1

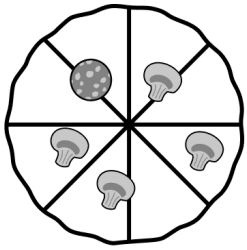


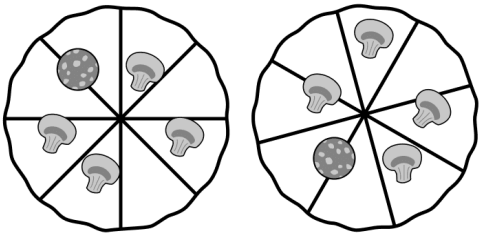
Pattern #2

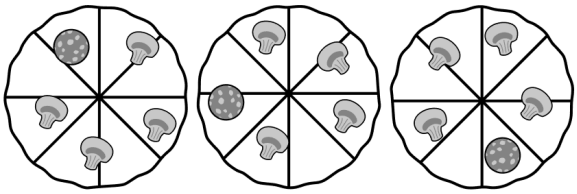


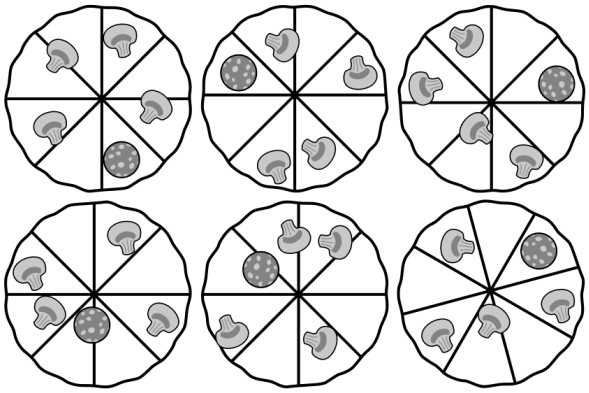
Which one uses more material? Explain your thinking.

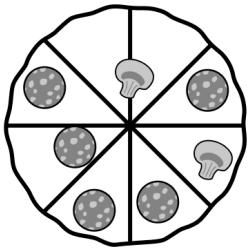
Unit 6.2, Lesson 2: Ratio Cards

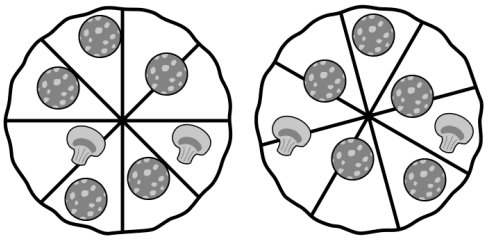


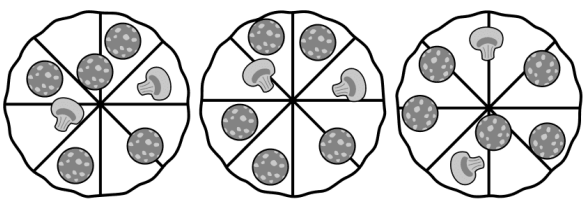


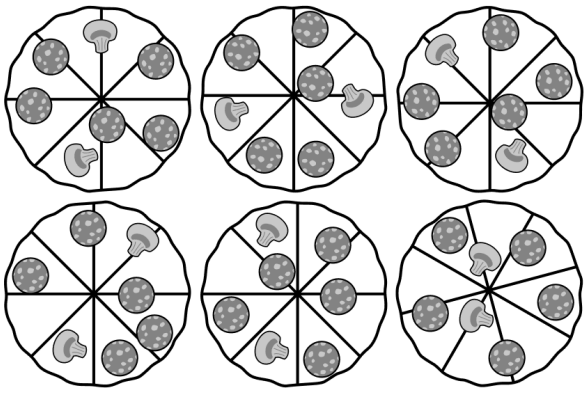












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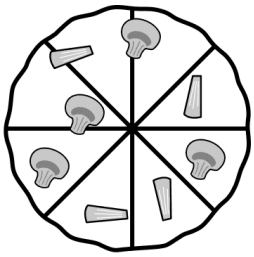
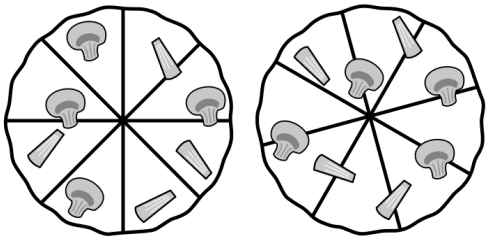
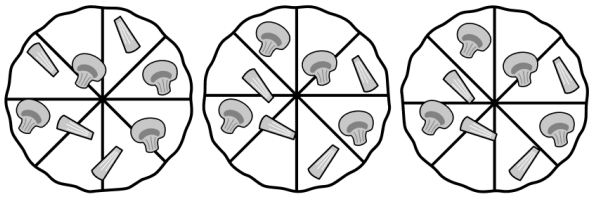
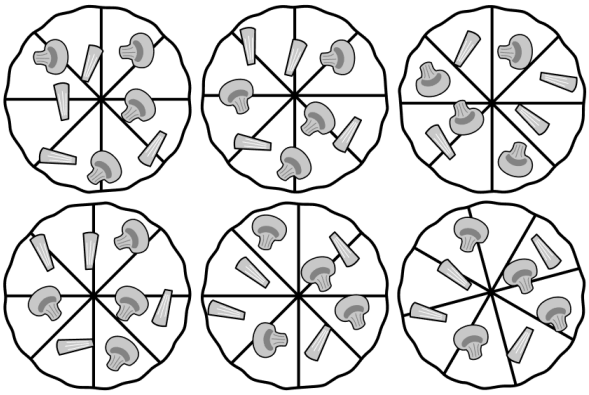
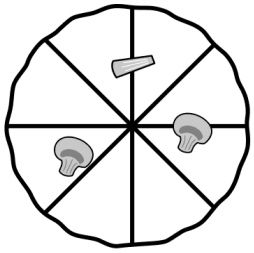
Unit 6.2, Lesson 2: Ratio Cards

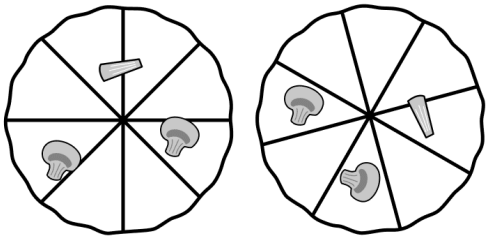


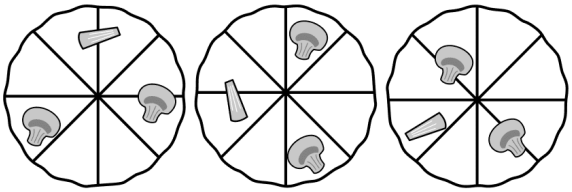


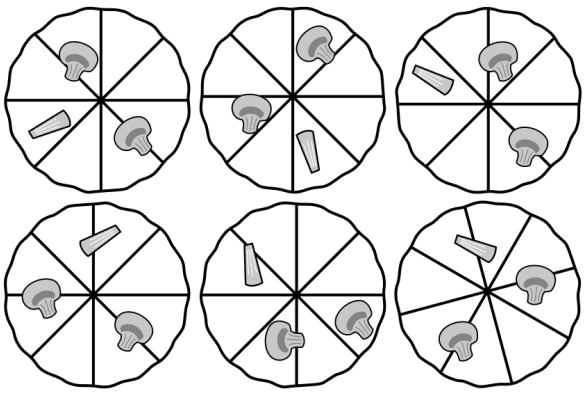












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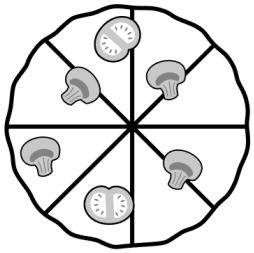
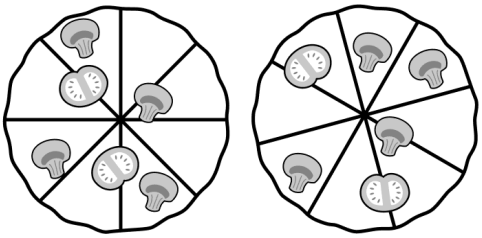
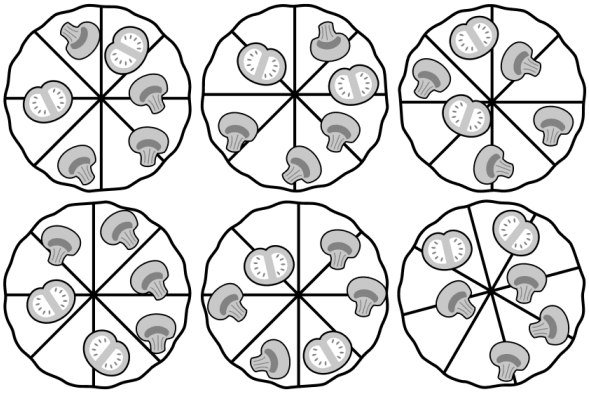
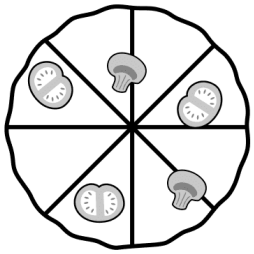
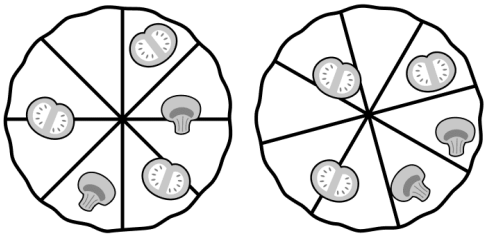
Unit 6.2, Lesson 2: Ratio Cards

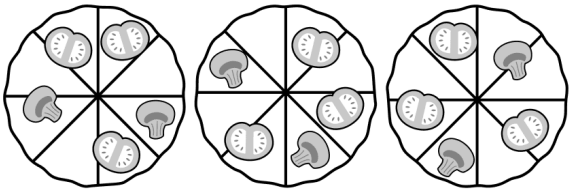


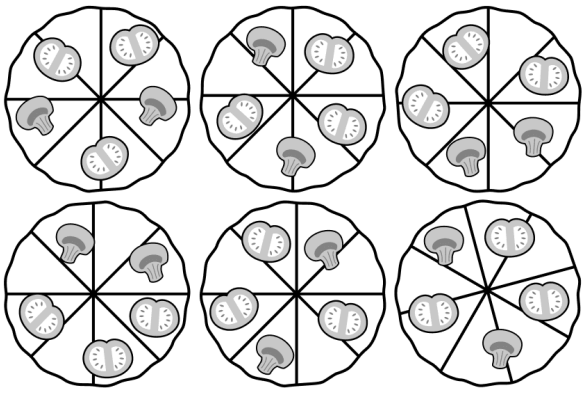












Unit 6.2, Lesson 2: Ratio Rounds Name _____

Activity 1: Ratio Rounds

Round 1

My Ratio	**_____'s Ratio**
For every ____ mushrooms,	For every ____ mushrooms,
there are ____ _____.	there are ____ _____.

Round 2

Our Ratio

My Ratio: The ratio of _____ to mushrooms is _____ to _____.

_____**'s Ratio:** The ratio of _____ to mushrooms is _____ to _____.

What is the same about your ratios?	What is different?

Round 3

My Ratios	**_____'s Ratios**	**_____'s Ratios**
mushrooms : _____	mushrooms : _____	mushrooms : _____
_____ : _____	_____ : _____	_____ : _____
_____ : mushrooms	_____ : mushrooms	_____ : mushrooms
_____ : _____	_____ : _____	_____ : _____

Intermission

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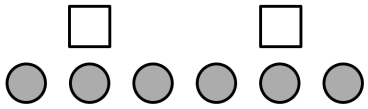
Unit 6.2, Lesson 2: Ratio Rounds Name _____

Activity 2: Two Truths and a Lie

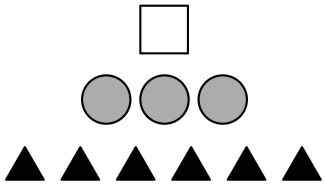


1. Circle the false statement.

   A. The ratio of circles to squares is $1:3$.

   B. There are 2 squares for every 6 circles.

   C. For every square, there are 3 circles.

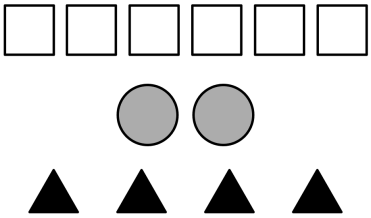


2. Circle the false statement.

   A. For every circle, there are 2 triangles.

   B. The ratio of circles to squares is 3 to 1.

   C. The ratio of squares to triangles is $1:2$.



3.1 Write three statements about this drawing: two that are true and one that is false.

A. _____

B. _____

C. _____

3.2 Trade with a classmate. Name: _____

Which statement is false?

Make your own drawing.

4.1 Write three statements about your drawing: two that are true and one that is false.

A. _____

B. _____

C. _____

4.2 Trade with a classmate. Name: _____

Which statement is false?

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Unit 6.2, Lesson 2: Ratio Rounds Name _____

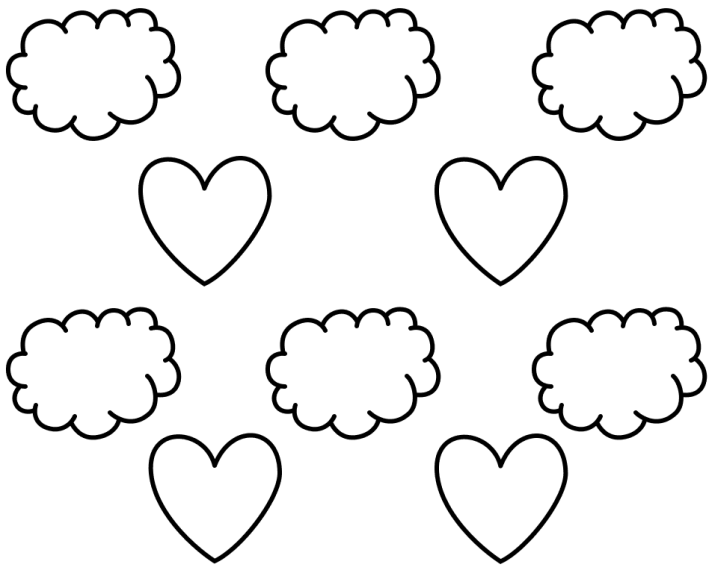
Lesson Synthesis

1. Describe the ratio between moons and stars in as many different ways as you can.

2. Which way of describing a ratio is your favorite?

   Explain your reasoning.

Cool-Down



Select **all** of the true statements.

- ☐ The ratio of clouds to hearts is 6 to 4.
- ☐ The ratio of hearts to clouds is 6 to 4.
- ☐ For every 2 clouds, there are 3 hearts.
- ☐ For every 3 clouds, there are 2 hearts.
- ☐ The ratio of hearts to clouds is $3:2$.

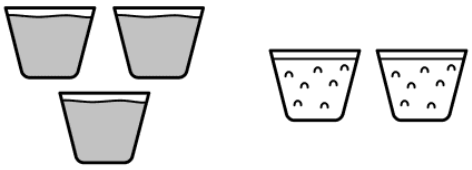
Unit 6.2, Lesson 3: Rice Ratios Name(s) _____

Activity 1: Rice Advice

Here are the instructions for two different bags of basmati rice.

Bag A

Cook 3 cups of water for every 2 cups of rice.



Bag B

Cook $1\ 1/2$ cups of water for every cup of rice.

1. How are these recipes different? How are they the same?

2. The ratios in these two recipes are called *equivalent ratios*. Why do you think they're called that?

3. Marco wants to make more rice than the recipe on Bag A calls for. What is another ratio of rice to water that he could use? Explain your thinking.

4. Bag A says its recipe makes rice for 6 people. What ratio of rice to water would you use to feed 18 people?

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Unit 6.2, Lesson 3: Rice Ratios Name(s) _____

Activity 2: Rice Around the World

Use *equivalent ratios* to determine how much of each ingredient is needed in each situation.

Jollof Rice

Jollof rice is a tomato-based rice dish from West Africa.

Ingredients
Makes one large bowl

- 4 cups of rice
- 3 tablespoons of tomato paste
- 1 bell pepper
- 5 tomatoes
- 2 onions
- $\frac{1}{3}$ cup of oil

Jamar's family invited another family over for dinner.

How much of each ingredient is needed for **two** large bowls of jollof rice?

____ cups of rice

____ tablespoons of tomato paste

____ bell peppers

____ tomatoes

____ onions

____ cups of oil

Arroz Con Leche

Arroz con leche is a creamy dessert from Mexico and Spain.

Ingredients
Serves 4 people

- 2 cups of rice
- 4 cups of milk
- $\frac{1}{3}$ cup of sugar
- 1 handful of raisins
- 1 cinnamon stick

Nia wants to cook arroz con leche for 12 people.

1. How much of each ingredient does she need?

   ____ cups of rice

   ____ cups of milk

   ____ cups of sugar

   ____ handfuls of raisins

   ____ cinnamon sticks

Valeria wrote that Nia needs 9 cinnamon sticks.

2. How might Valeria have arrived at this answer?

3. What advice would you give her?

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Unit 6.2, Lesson 3: Rice Ratios Name(s) _____

Champorado

Champorado is a chocolate rice porridge eaten in the Philippines.

Ingredients
Serves 2 people

- $\frac{1}{2}$ cup of rice
- 2 cups of water
- 1 can of coconut milk
- $\frac{1}{4}$ cup of cocoa powder
- 1 cup of sugar

Julian has 2 cups of rice and wants to use all of it to make champorado.

1. How much of the other ingredients does he need?

   2 cups of rice

   ____ cups of water

   ____ cans of coconut milk

   ____ cups of cocoa powder

   ____ cups of sugar

2. How many people will Julian's champorado serve?

Risotto

Risotto is an Italian rice dish that uses broth to get a creamy texture.

Ingredients
Serves 8 people

- 3 cups of rice
- 10 cups of chicken broth
- 4 tablespoons of olive oil
- 2 tablespoons of butter
- 8 ounces of parmesan cheese

Ariana says this recipe makes too much risotto.

1. How much of each ingredient could she use to make a smaller amount of risotto?

   ____ cups of rice

   ____ cups of chicken broth

   ____ tablespoons of olive oil

   ____ tablespoons of butter

   ____ ounces of parmesan cheese

2. How many people will this serve?

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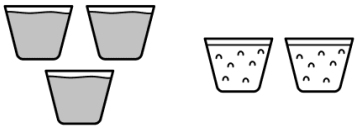
Unit 6.2, Lesson 3: Rice Ratios Name(s) _____

Lesson Synthesis

The recipes on Bags A and B call for equivalent ratios of rice to water.

Bag A

Cook 3 cups of water for every 2 cups of rice.



Bag B

Cook $1\ 1/2$ cups of water for every cup of rice.

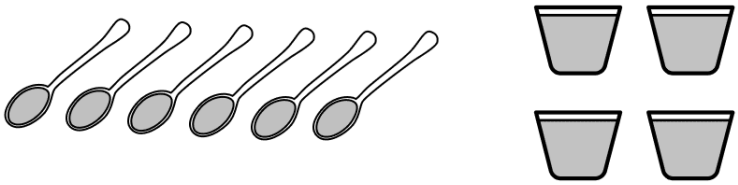
1. Explain what *equivalent ratios* are in your own words.

2. Create a new ratio of water to rice that is equivalent to the ratios for Bags A and B.

Cool-Down

A recipe for pizza dough begins with these instructions:

Mix 6 teaspoons of yeast for every 4 cups of flour.



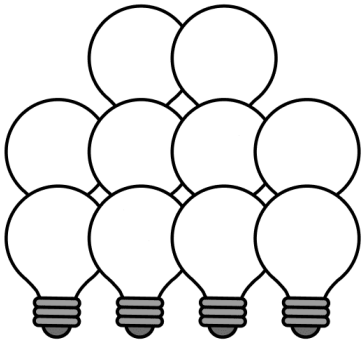
Select **all** the ratios that are equivalent to the original recipe.

- ☐ 3 teaspoons of yeast to 2 cups of flour
- ☐ 7 teaspoons of yeast to 5 cups of flour
- ☐ 18 teaspoons of yeast to 12 cups of flour
- ☐ 4 teaspoons of yeast to 2 cups of flour

A.

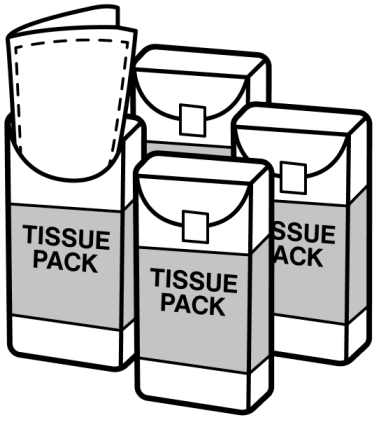
$7

B.



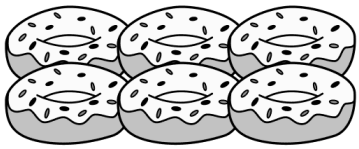
$24

C.



$5

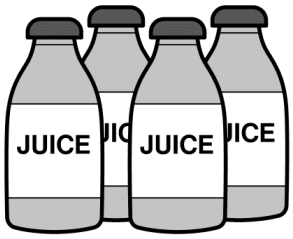
D.



$3

How much for 4?

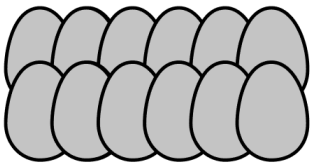
E.



$6

How much for 3?

F.



$2.40

How much for 8?

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Unit 6.2, Lesson 6: Cards

G.

$4

How much for 10?

J.

$9

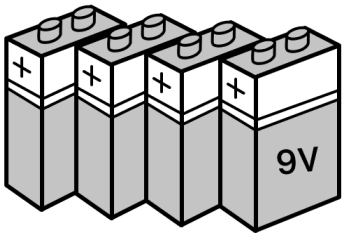
How much for 3?

H.

$16

How much for 3?

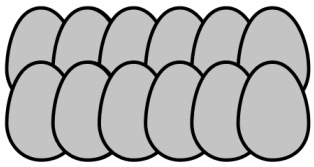
K.



$10

How much for 5?

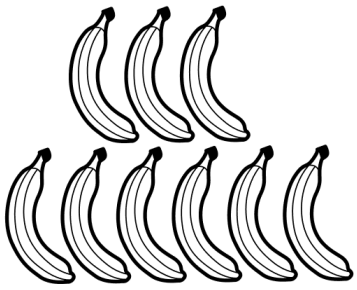
I.



$2.40

How much for 7?

L.



$3

How much for 6?

Unit 6.2, Lesson 6: Product Prices Name(s) _____

Activity 1: How Much for One?

Imagine that you're at a store buying products for your family.

1. Find cards A, B, and C. Sort the products from **least expensive** to **most expensive**.

   Least expensive _____ _____ _____ **Most expensive**

2. Discuss your strategy for sorting with a classmate.

3. Select one card from A–C. What is the price per item? Show your reasoning.

   Card ____

Activity 2: How Much for Many?

1. Use the space below to write answers for cards D–F and show your reasoning.

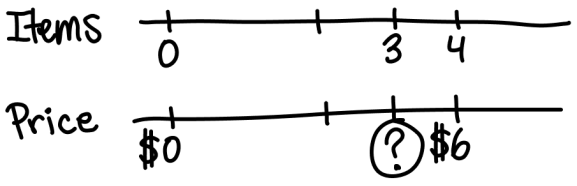
Card D	Card E	Card F

2. Compare your answers and strategies with a classmate. Discuss any similarities and differences you see.

3. Mariana drew this double number line.

   Which card do you think she was working on?

   Explain your thinking.



4. Look through cards G–L. Which do you think is easiest to solve? Why?

5. Select three cards from G–L and answer them. Show or explain your reasoning.

Card ____	Card ____	Card ____

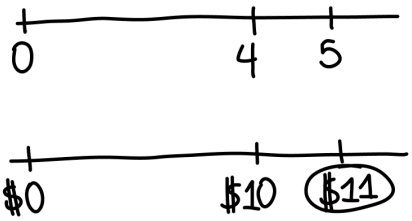
Two students made a mistake when solving card K.

6.1 Decide which student made your favorite mistake. Circle their name.

6.2 What did this student do well?

6.3 What advice would you give to this student?

Mariana's Work



Naoki's Work

$10 ÷ 5 = $2

$2 · 4 = $8

Are You Ready for More?

You have $20 to spend on a mix of products from cards A–L. You can purchase up to the number of items shown on each card. Create a list of items that will cost as close to $20 as you can (without going over).

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Unit 6.2, Lesson 6: Product Prices Name(s) _____

Lesson Synthesis

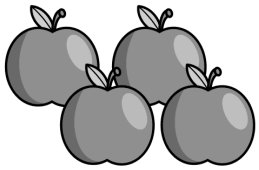
1. Create a card similar to cards D–L.

2. Describe a general strategy for solving cards like the one you created.

Cool-Down

Answer the question on each card and show your reasoning.

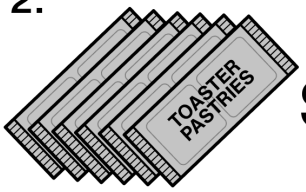
1.



$3

How much for 1?

2.



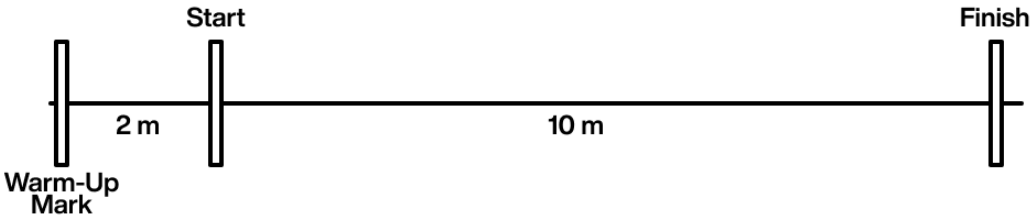
$7.50

How much for 4?

Unit 6.2, Lesson 8: World Records Name(s) _____

Activity 1: Moving 10 Meters

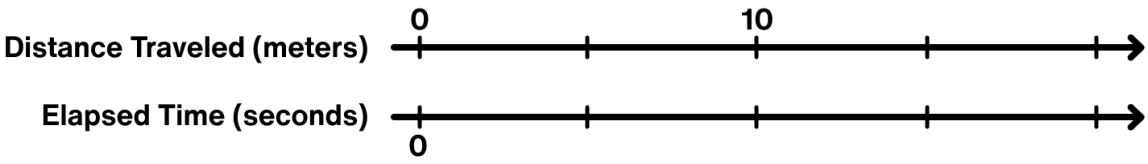
What is your walking speed? Use the instructions displayed by your teacher to help you gather the data you need to find.



1. Gather data on your walking speed.

   Distance: _____ meters Time: _____ seconds

2. Use your data to complete the double number line diagram.



3. Estimate your walking speed using the unit rate “meters per second.”

4. At this rate, how long would it take you to walk 5 meters? 20 meters?

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Unit 6.2, Lesson 8: World Records Name(s) _____

Activity 2: World Records

1. Danyl Boldyrev, Keni Harrison, and César Cielo each set records in their sports: climbing, hurdles, and swimming. Predict the order of these athletes from slowest to fastest.

Boldyrev	Harrison	Cielo	You
(15 m climb)	(100 m hurdles)	(50 m swim)	(10 m walk)
Slowest _____	_____	_____	_____ **Fastest**

2. What information would help you determine the actual order?

3. Watch the partial videos. Discuss with a partner if your order changed.

4. Use the approximate times to determine the slowest-to-fastest order. Show your thinking.

Athlete	Event	Distance (meters)	Approximate Time (seconds)
Danyl Boldyrev	Climbing	15	
Keni Harrison	Hurdles	100	
César Cielo	Swimming	50	
You	Walking fast	10	

Boldyrev	Harrison	Cielo	You
(15 m climb)	(100 m hurdles)	(50 m swim)	(10 m walk)
Slowest _____	_____	_____	_____ **Fastest**

5. Watch the full videos. Use the exact times to determine the most accurate slowest-to-fastest order. Explain your thinking.

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Unit 6.2, Lesson 8: World Records Name(s) _____

Are You Ready for More?

Here are the distances and times for three sprinting world records in women's track and field.

Athlete	Distance (meters)	Time (seconds)
Irina Privalova	60	6.92
Florence Griffith Joyner	100	10.49
Marita Koch	400	47.6

1. Which athlete was moving the fastest?

2. Which athlete was moving the slowest?

3. Do you find either of the answers to these questions surprising? Why or why not?

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Unit 6.2, Lesson 8: World Records Name(s) _____

Lesson Synthesis

Describe a strategy to determine which of two athletes is moving faster. Use the tables below to help you with your explanation.

Athlete #1

Distance (meters)	Time (seconds)
50	8

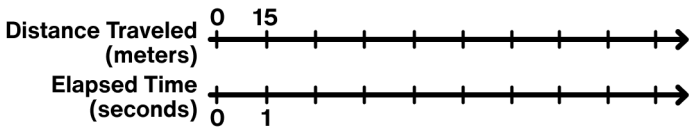
Athlete #2

Distance (meters)	Time (seconds)
60	10

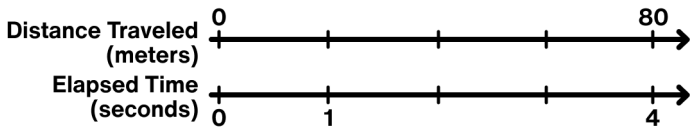
Cool-Down

Two cyclists are traveling at constant speeds on different tracks. Some of the times and distances for each cyclist are recorded on these double number lines.

Cyclist A



Cyclist B



Which cyclist is traveling faster? Explain your reasoning.

Activity 2: FEMA Poster

Here are some additional pieces of guidance from FEMA:

- For every 100 people, have 20 rolls of **paper towels**.
- Plan for one-half gallon of **drinking water** per person per day.
- Have 1 **magnifying glass** for every 50 people.
- For every 100 people, have 3 bags of 50 **cotton balls**.
- Prepare 1 **bed** per person, plus 10 extra beds for volunteers.
- Have 6 pairs of **crutches**.

1. Use FEMA's guidance to make recommendations for preparing 3 cities for a disaster.

City	Population	Rolls of Paper Towels	Magnifying Glasses	Pairs of Crutches	Cotton Balls
Charlestown, Utah	300				
Whitney, Texas	2000				
Burlington, Vermont	50 000				

2. Is there anything you disagree with? If yes, explain which numbers you think should change and why. If no, explain why not.

Complete the steps below and make a poster of your work.

- ☐ Choose a city or town that is meaningful to you and look up its population.
- ☐ Make recommendations to the city or town. Choose **at least four** different supplies from the list. Determine how many of each item the city should have on hand in case of a disaster.
- ☐ Explain or show how you determined the amount of each item your city will need.
- ☐ Explain **at least two** changes or additions you think FEMA should make to its guidance.

1 kilogram (kg)	1 mile (mi.)	1 kilometer (km)	1 milliliter (mL)
1 ounce (oz.)	1 liter (L)	1 pound (lb.)	1 gallon (gal.)
1 millimeter (mm)	1 gram (g)	1 cup (cup)	1 centimeter (cm)

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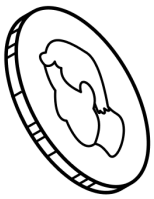
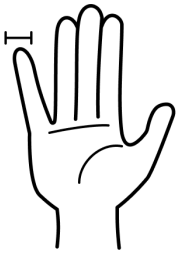
Unit 6.3, Lesson 1: Cards

Distance walked in 10 minutes

Distance run in 10 minutes

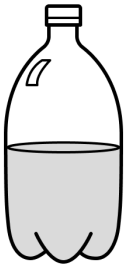


Thickness of a dime

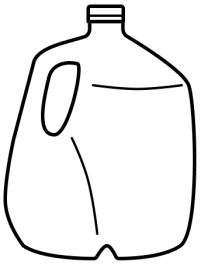


Width of a pinky finger

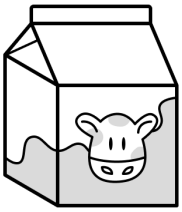
Volume of water in a raindrop



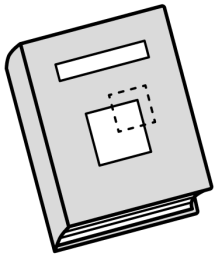
Volume of soda in half of a large soda bottle



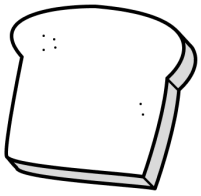
Volume of milk in a large milk jug



Volume of milk in a school milk carton



Mass of a textbook



Weight of a slice of bread

Mass of a paper clip

Weight of a hooded sweatshirt

Unit 6.3, Lesson 1: Many Measurements Name _____

Activity 1: Describe It

1. With a partner, use words, drawings, hand gestures, familiar objects, or other strategies to answer the question: *How much is _____?*

   Check off each measurement as you describe it.

✓ 1 foot	☐ 1 meter	☐ 1 gallon	☐ 1 millimeter
☐ 1 cup	☐ 1 square foot	☐ 1 yard	☐ 1 square inch

2. Which measurements were easy to describe? Hard to describe?

Easy to Describe	Hard to Describe

Activity 2: Sort It

1. Sort the units of measurement cards into groups based on whether they measure length, volume, or mass/weight. There will be four cards in each group.

2. Sort the cards in each group from smallest unit to largest unit. Record your results below.

Attribute	Smallest Unit			Largest Unit
Length	_____	_____	_____	_____
Volume	_____	_____	_____	_____
Mass/Weight	_____	_____	_____	_____

3. Match each picture card with the unit of measurement that best represents it.

4. Pick one card. Discuss with a partner: *What else could we measure about this object?*

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Unit 6.3, Lesson 1: Many Measurements Name _____

Are You Ready for More?

The table below shows four unit conversions. Add any other unit conversions you can think of.

Length	Mass/Weight
1 foot $=$ 12 inches	1 kilogram $=$ $1\,000$ grams
Volume	**Time**
1 gallon $=$ 4 quarts	1 hour $=$ 60 minutes

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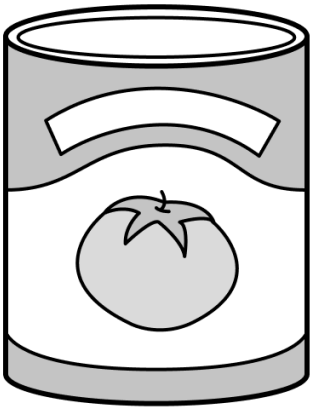
Unit 6.3, Lesson 1: Many Measurements Name _____

Lesson Synthesis

1. List several things we could measure about this can.

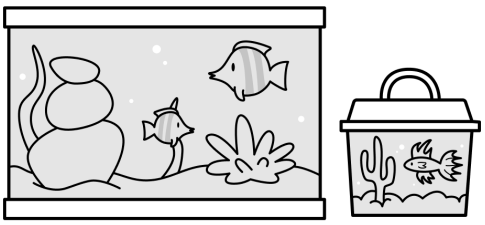


2. What units would you use to measure each of those things?

Cool-Down

Malik and Lukas each have a fish tank. Malik's tank holds 20 gallons. Lukas's tank holds 20 cups.

1. Label each fish tank with the name of the person it belongs to.
   Explain your reasoning.



_____ _____

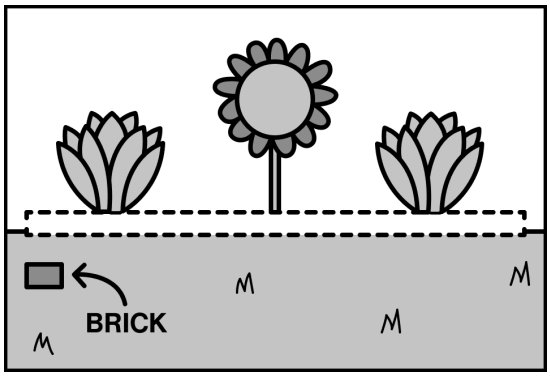
2. Angel's fish tank holds 20 liters of water. How does it compare to Malik's and Lukas's tanks?

   Draw it if it helps you show your thinking

Unit 6.4, Lesson 5: Garden Bricks Name _____

Warm-Up

Activity 1: How Many Bricks?



Deja and Emma are helping to upgrade their class gardens by putting bricks along the front of each garden.

Help them figure out how many bricks are needed.
Use a tape diagram if it helps you with your thinking.

1. The first garden is 4 feet long. Deja is using small bricks, which are each $\frac{1}{3}$ of a foot long.

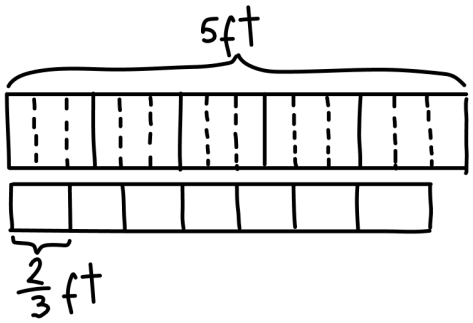
   How many small bricks are needed?

2. The second garden is also 4 feet long. Emma is using large bricks, which are each $\frac{2}{3}$ of a foot long. How many large bricks are needed?

3. The third garden is 5 feet long. How many large bricks ($\frac{2}{3}$ of a foot long) are needed?

4. Deja and Emma were working on Problem 3. They each have some correct thinking and some incorrect thinking. Read each person's work and write some advice for them.

Deja's Work	**Advice for Deja**
$5 \div \frac{2}{3}$ " $5 \div \frac{2}{3}$ is less than 5 because you're dividing."	

Emma's Work	**Advice for Emma**
 "You need $7\ \frac{1}{3}$ bricks because there are 7 whole bricks and $\frac{1}{3}$ left over."	

Emma wrote $4\ \frac{1}{4} \div \frac{3}{4}$ to help her answer a different question about bricks and gardens.

5.1 Explain what $4\ \frac{1}{4}$ and $\frac{3}{4}$ mean (in terms of bricks and gardens).

5.2 Draw a tape diagram and use it to determine the value of $4\ \frac{1}{4} \div \frac{3}{4}$.

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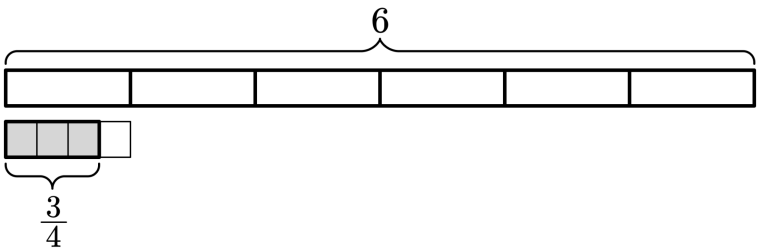
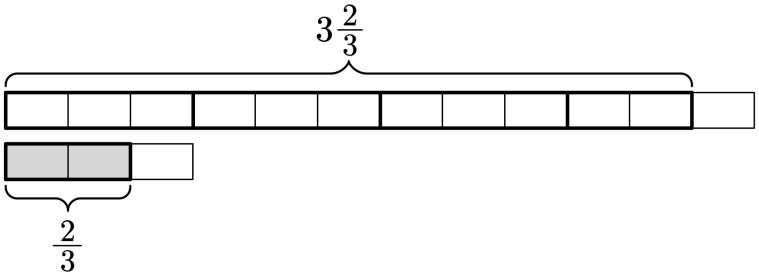
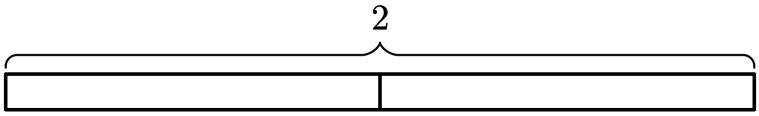
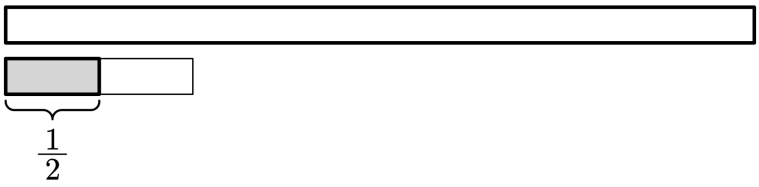
Unit 6.4, Lesson 5: Garden Bricks Name _____

Activity 2: What's Missing?

Complete each row in the table.

	Division Sentence	Tape Diagram	Answer
1	$6 \div \frac{3}{4}$		
2			
3	$2 \div \frac{3}{5}$		
4			7

Are You Ready for More?

1. Write a division sentence in this space.
2. On a separate piece of paper, draw a tape diagram.
3. Trade tape diagrams with a partner. Determine their division sentence and calculate its value.

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Unit 6.4, Lesson 5: Garden Bricks Name _____

Lesson Synthesis

1. Draw a tape diagram to represent $3 \div \frac{2}{3}$.

2. Describe how you can use the tape diagram to help determine the value of $3 \div \frac{2}{3}$.

Cool-Down

Use a tape diagram to determine the value of $3 \div \frac{4}{5}$.

Unit 6.4, Lesson 10: Cards

$\frac{3}{4} \div \frac{1}{2}$	$\frac{3}{2}$
$\frac{3}{4} - \frac{1}{2}$	$\frac{3}{8}$
$\frac{1}{2} \div \frac{3}{4}$	$\frac{1}{4}$

$\frac{3}{4} \div \frac{1}{2}$	$\frac{3}{2}$
$\frac{3}{4} - \frac{1}{2}$	$\frac{3}{8}$
$\frac{1}{2} \div \frac{3}{4}$	$\frac{1}{4}$

$\frac{3}{4} \div \frac{1}{2}$	$\frac{3}{2}$
$\frac{3}{4} - \frac{1}{2}$	$\frac{3}{8}$
$\frac{1}{2} \div \frac{3}{4}$	$\frac{1}{4}$

$\frac{3}{4} \div \frac{1}{2}$	$\frac{3}{2}$
$\frac{3}{4} - \frac{1}{2}$	$\frac{3}{8}$
$\frac{1}{2} \div \frac{3}{4}$	$\frac{1}{4}$

Unit 6.4, Lesson 10: Swap Meet Name _____

Activity 1: Match and Solve

1. Match each question with its expression and solution. Two cards are missing.

	Question	Expression	Answer
A	Hailey lives $\frac{1}{2}$ of a mile from school. Luis lives $\frac{3}{4}$ of a mile from school. How many more miles from school does Luis live?		
B	Darius is making a small garden that is $\frac{3}{4}$ of a foot long and $\frac{1}{2}$ of a foot wide. What is the area of the garden?		
C	A cookie recipe uses $\frac{1}{2}$ of a cup of sugar per batch. Ama has $\frac{3}{4}$ of a cup of sugar. How many batches can she make?		
D	Kanna biked $\frac{1}{2}$ of a mile, which is $\frac{3}{4}$ of the distance between her home and school. What is the total distance?		

2. Write the expression and solution for the missing cards.

3. Circle one of the expressions above. Explain how you decided which question it represents.

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Unit 6.4, Lesson 10: Swap Meet Name _____

Activity 2: Write, Trade, Solve!

A. $1\frac{1}{2} \div \frac{3}{4}$	**B.** $\frac{5}{6} \cdot \frac{2}{3}$	**C.** $5 \div \frac{1}{4}$	**D.** $\frac{2}{5} \div \frac{9}{2}$	**E.** $4\frac{1}{2} \cdot \frac{1}{3}$
F. $\frac{3}{4} \div 1\frac{1}{2}$	**G.** $\frac{5}{6} \div \frac{2}{3}$	**H.** $5 \div \frac{3}{4}$	**I.** $\frac{9}{2} \div \frac{2}{5}$	**J.** $4\frac{1}{2} \div \frac{1}{3}$

1. **Circle an expression.**

2. **Create your own question.** On an index card (or slip of paper), write a question that can be represented by the expression you chose.

3. **Answer your question.** Calculate the value of your expression and answer your question. Show all of your thinking in the space below. (Do not write your thinking on the slip of paper.)

4. **Trade and solve.** Find a classmate who is ready and trade questions. Write an expression that can be used to answer their question. Then use any strategy to calculate the value and answer the question. Repeat several times.

Partner 1's name: _____	Partner 2's name: _____
Expression: _____	Expression: _____
Work to answer their question:	Work to answer their question:

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Unit 6.4, Lesson 10: Swap Meet

Name _____

Partner 3's name: _____

Expression: _____

Work to answer their question:

Partner 4's name: _____

Expression: _____

Work to answer their question:

Partner 5's name: _____

Expression: _____

Work to answer their question:

Partner 6's name: _____

Expression: _____

Work to answer their question:

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Unit 6.4, Lesson 10: Swap Meet Name _____

Lesson Synthesis

Chocolate chips come in $\frac{2}{3}$ -pound bags. I need $\frac{5}{4}$ of a pound of chocolate chips for my recipe. How many bags of chocolate chips do I need?

1. Explain how you know which expression represents this situation.

$$\frac{5}{4} \div \frac{2}{3} \quad \text{or} \quad \frac{2}{3} \div \frac{5}{4}$$

2. Calculate the value of the expression you selected.

Cool-Down

Calculate the value of each expression.

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

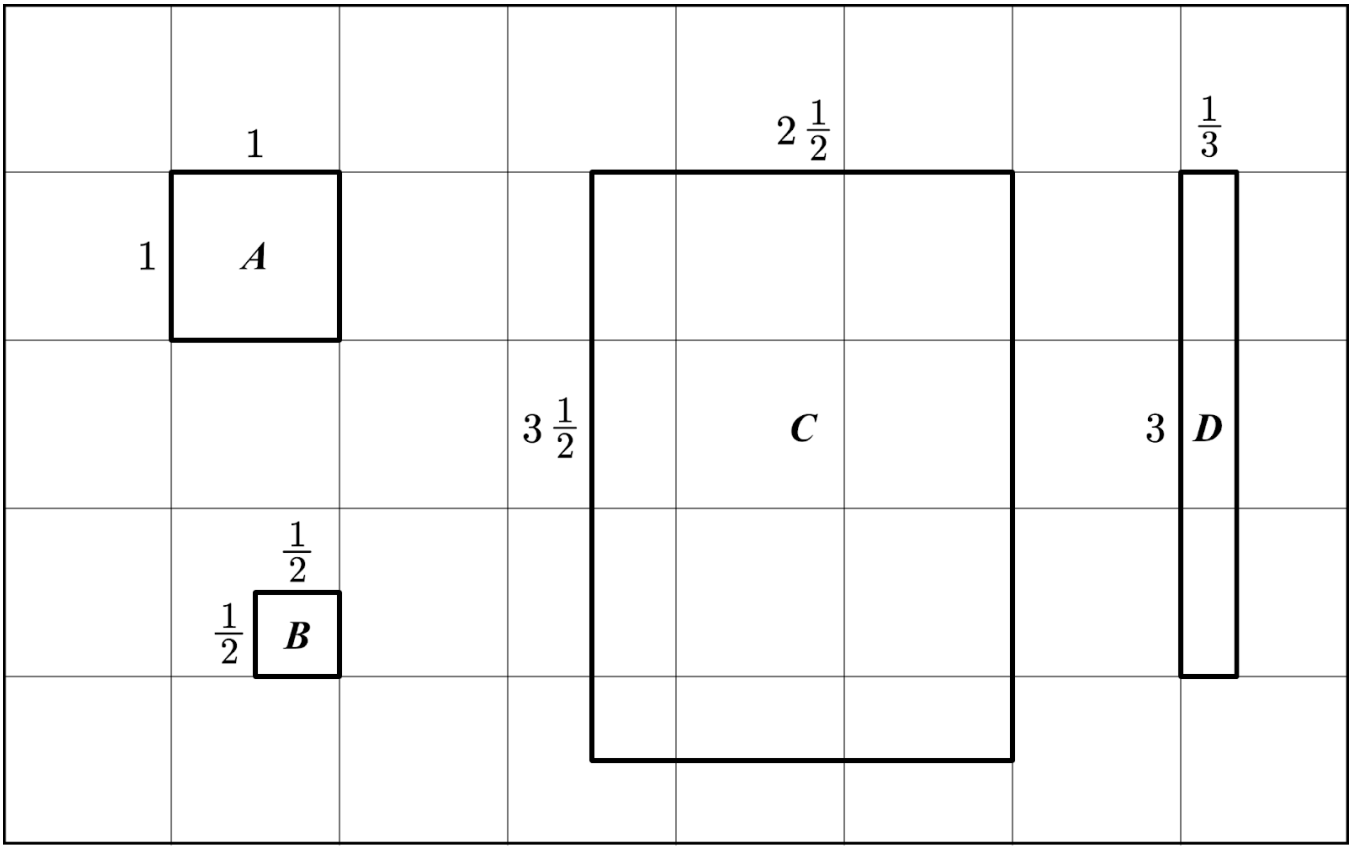
2. $\frac{1}{4} \div \frac{5}{6}$

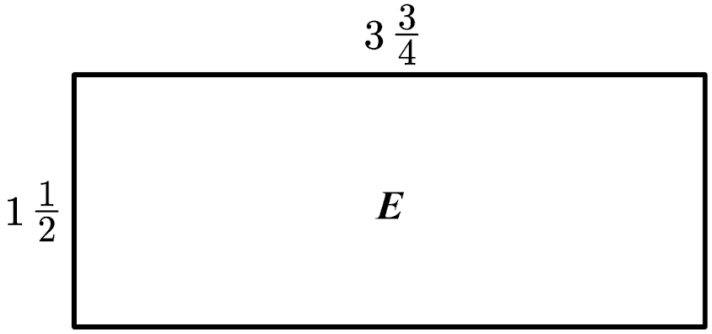
Unit 6.4, Lesson 12: Puzzling Areas

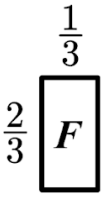
Activity 1: Rectangle Areas

Use any strategy to determine the area of as many of these rectangles as you can.
Use the workspace below if it helps you with your thinking.

Rectangle	*A*	*B*	*C*	*D*	*E*	*F*
Area (sq. units)						







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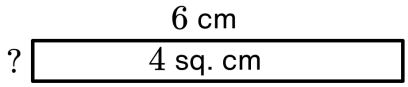
Unit 6.4, Lesson 12: Puzzling Areas

Activity 2: Level Up Area Puzzles

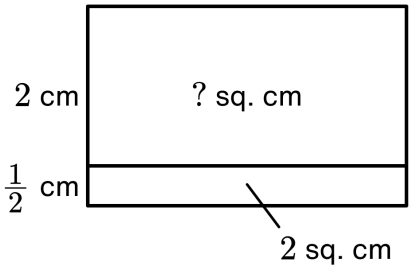
Use any strategy to determine the value of the "?".

Level 1



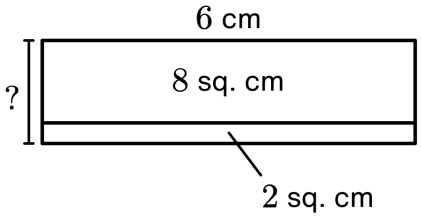
? = _____ cm

Level 2



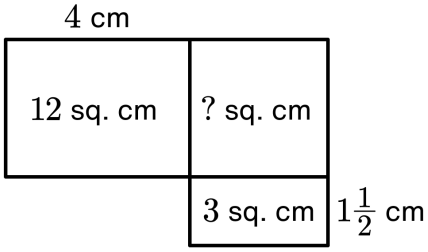
? = _____ sq. cm

Level 3



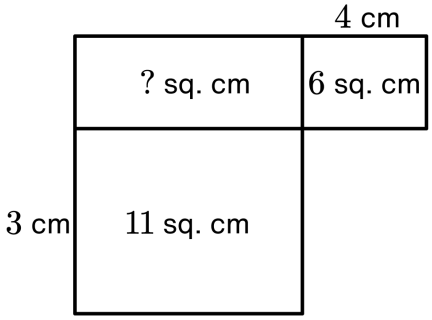
? = _____ cm

Level 4



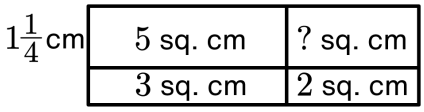
? = _____ sq. cm

Level 5



? = _____ sq. cm

Level 6



? = _____ sq. cm

Are You Ready for More?

Create your own "Level Up Area Puzzle" and trade with a classmate.

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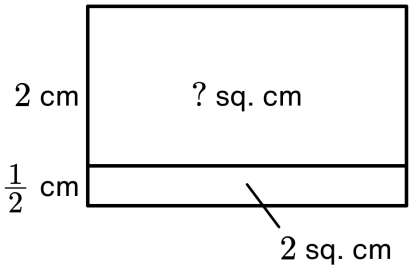
Unit 6.4, Lesson 12: Puzzling Areas

Lesson Synthesis

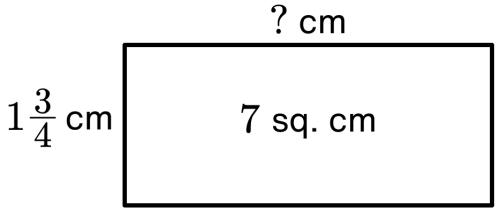
1. When is multiplication helpful for solving problems involving areas of rectangles?

2. When is division helpful?



Cool-Down

Use any strategy to determine the value of the "?". Show or explain your thinking.



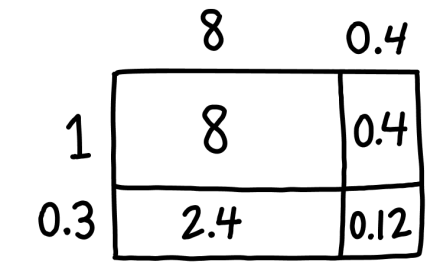
? = _____ cm

Unit 6.5, Lesson 7: Multiplication Methods Name _____

Activity 1: Multiple Methods

Kwame and Tiara used different strategies to multiply $8.4 \cdot 1.3$.

Kwame's work



$8+0.4+2.4+0.12=10.92$

Tiara's work

$8.4 \cdot 1.3$

$84 \cdot 13 \cdot \frac{1}{10} \cdot \frac{1}{10}$

$84 \times 13 = 12 + 240 + 40 + 800 = 1092$

$1092 \cdot \frac{1}{100}$

10.92

1.1 Take a minute to make sense of each person's strategy.

1.2 Discuss: *How are their strategies similar? How are they different?*

1.3 Show how each person would set up $8.4 \cdot 0.13$.

Kwame

Tiara

1.4 Use **either** Kwame's or Tiara's strategy to finish calculating $8.4 \cdot 0.13$.

2. Tiara wrote this expression to help her calculate $2.9 \cdot 0.15$.

$$29 \cdot 15 \cdot \frac{1}{10} \cdot \frac{1}{100}$$

If $29 \cdot 15 = 435$, then what is $2.9 \cdot 0.15$?

A. 43.5 B. 4.35 C. 0.435 D. 0.0435

3. If $165 \cdot 12 = 1980$, then what is $16.5 \cdot 1.2$?

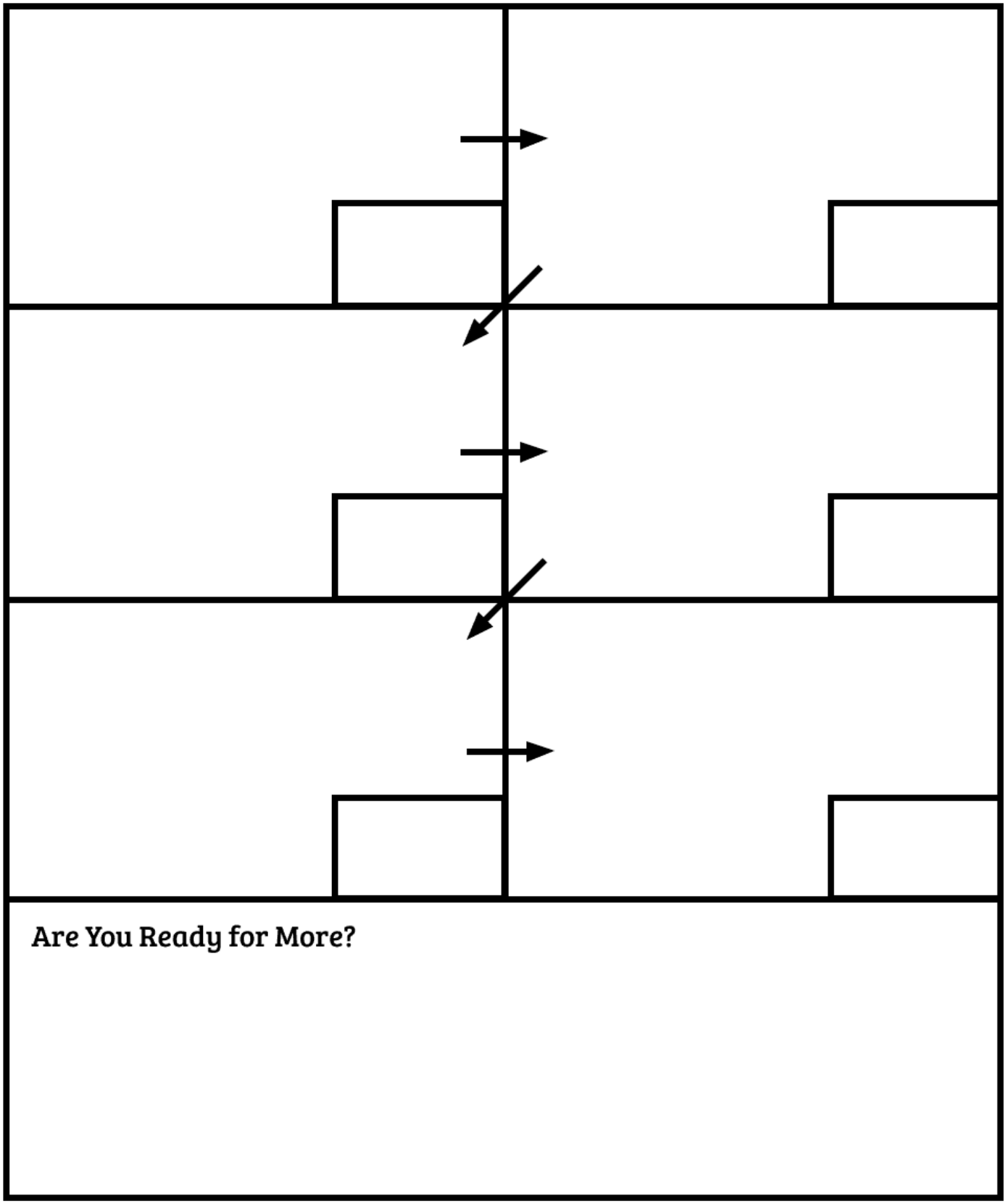
Show or explain your thinking.

4.1 Select **all** of the expressions that have a product of 0.024.

☐ $0.06 \cdot 0.4$ ☐ $0.6 \cdot 0.04$ ☐ $0.04 \cdot 0.06$ ☐ $2 \cdot 0.012$ ☐ $1.2 \cdot 0.02$

4.2 Write another expression that has a product of 0.024.

Activity 2: Scavenger Hunt



Are You Ready for More?

Lesson Synthesis

Describe a strategy that helps you multiply decimals like $0.39 \cdot 3.2$.

If you learned your strategy from another student, give that student a shoutout.

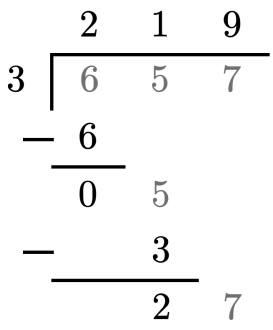
Cool-Down

Calculate $1.6 \cdot 0.21$. Show your thinking.

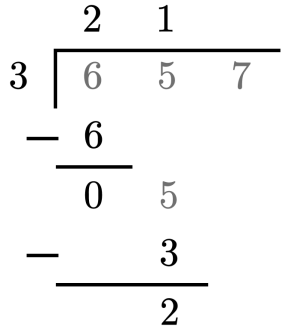
desmos Science Mom Lesson 42

Unit 6.5, Lesson 9: Cards

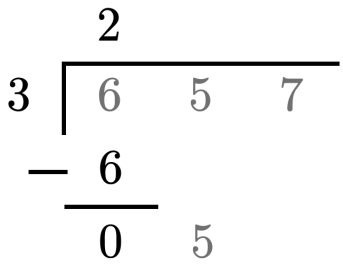
A



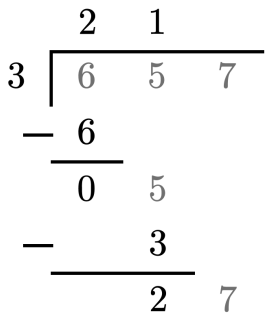
B



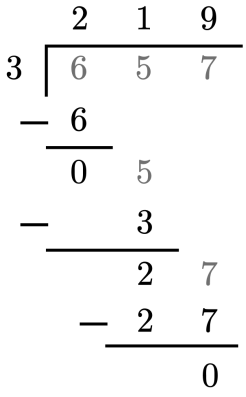
C



D



E



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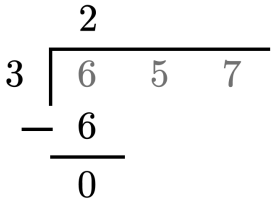

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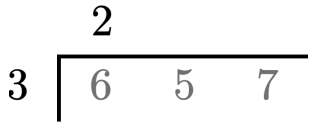

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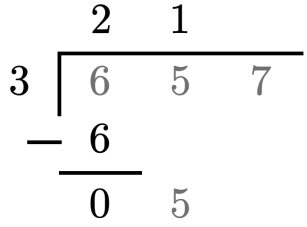

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Unit 6.5, Lesson 9: Cards

I

Subtract 10 groups of 3.

There are 2 tens left.

J

Subtract 200 groups of 3.

There are 0 hundreds left.

K

How many groups of 3 are in 6 (hundred)?

2. Write 2 in the hundreds place.

L

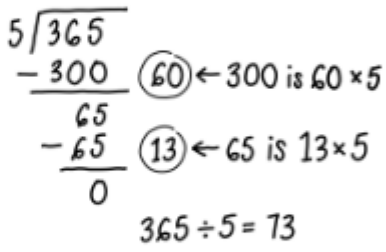
Subtract 9 groups of 3.

Unit 6.5, Lesson 9: Long Division Launch Name _____

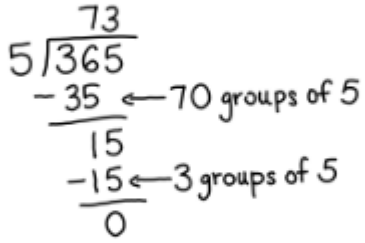
Activity 1: Strategies for Dividing

Ali and Camila used different strategies to calculate 365 ÷ 5.

Ali



Camila



1.1 Take a minute to make sense of each person's strategy.

1.2 Discuss: *How are their strategies similar? How are they different?*

1.3 How would Ali and Camila calculate 864 ÷ 4? Write the first step using each strategy.

Ali

Camila

Activity 2: Long Division

Your teacher will give you cards that represent how Camila solved 657 ÷ 3.

1.1 Find cards A–H. Work with a partner to order them from first to last. Write the order below.

First Step __G__ _____ _____ _____ _____ _____ _____ _____ **Last Step**

1.2 Find cards I–L. Match each card to one of the steps above.

1.3 Discuss: *What would you write for each of the other steps?*

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Unit 6.5, Lesson 9: Long Division Launch Name _____

Finish Camila's work for each new division problem.

2. $5016 \div 4$

$$\begin{array}{r} 12 \\ 4\overline{)5016} \\ -4\downarrow \\ \hline 10 \\ -8 \\ \hline 2 \end{array}$$

3. $1287 \div 9$

$$\begin{array}{r} 1 \\ 9\overline{)1287} \\ -9 \\ \hline 3 \end{array}$$

4. Calculate the value of *at least* one expression in each column.

A. $846 \div 3$	B. $765 \div 9$	C. $1\,816 \div 4$
D. $1\,331 \div 11$	E. $3\,768 \div 12$	F. $1\,950 \div 15$

Reflect: What is important to remember when dividing numbers using long division?

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Unit 6.5, Lesson 9: Long Division Launch Name _____

Activity 3: Different Expression, Same Value

1. $255 \div 5 = 51$. Is $2.55 \div 0.05$ less than, greater than, or equal to $255 \div 5 = 51$?

   Explain how you know.

2. Select **all** of the expressions that have the same value as $2.55 \div 0.05$.

   ☐ $255 \div 5$ ☐ $\frac{255}{10} \div \frac{5}{100}$ ☐ $\frac{255}{100} \div \frac{5}{100}$ ☐ $\frac{2550}{1000} \div \frac{50}{1000}$

3. Which of these expressions would you use to calculate $2.55 \div 0.05$?
   Explain your reasoning.

4. Select **all** of the expressions that have the same value as $3.6 \div 0.12$.

   ☐ $36 \div 12$ ☐ $360 \div 12$ ☐ $\frac{36}{10} \div \frac{12}{100}$ ☐ $\frac{360}{100} \div \frac{12}{100}$

5. Which of these expressions would you use to calculate $3.6 \div 0.12$?
   Explain your reasoning.

6. Calculate $3.6 \div 0.12$.

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Unit 6.5, Lesson 9: Long Division Launch Name _____

7. Calculate the value of *at least* one expression in each row.

G. $1.62 \div 0.03$	H. $1.08 \div 0.04$	I. $21.5 \div 0.05$
J. $3.5 \div 0.05$	K. $2.4 \div 0.06$	L. $100.1 \div 0.07$

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Unit 6.5, Lesson 9: Long Division Launch Name _____

Lesson Synthesis

Describe a strategy for calculating division problems that have decimals.

Use the example to the right if it helps you with your thinking.

$15.2 \div 0.4$

Cool-Down

Calculate each value.

1. $1\,875 \div 15$

2. $30.1 \div 0.7$

Unit 6.5, Lesson 10: Return of the Long Division Name _____

Activity 1: Division Strategies

Round 1	Round 2	Round 3
My work:	**My work:**	**My work:**

Are You Ready for More?

Complete these problems on a separate sheet of paper if you finish a round early.

$43.5 \div 3$ $5.5 \div 0.4$ $3 \div 8$

1. Reflect: *What can you do when the quotient is not a whole number?*

2. Here are some division expressions and their values. Use any strategy to show that:

$0.7 \div 0.4 = 1.75$

$22.5 \div 0.04 = 562.5$

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Unit 6.5, Lesson 10: Return of the Long Division Name _____

Activity 2: Finding Expressions

1. Write down one expression from the supplement that . . .

. . . includes dividing by a number greater than 1.	. . . includes dividing by a number less than 1.
. . . includes dividing by a number in hundredths.	. . . has a quotient less than 1.
. . . has a quotient greater than 15.	. . . has a quotient close to 10.

2. Calculate the value of at least three of the above expressions. Show all of your thinking.

   Make sure you and your partner select different expressions.

   When you are finished, compare your thinking with your partner.

Expression: _____	**Expression:** _____	**Expression:** _____
My thinking:	**My thinking:**	**My thinking:**

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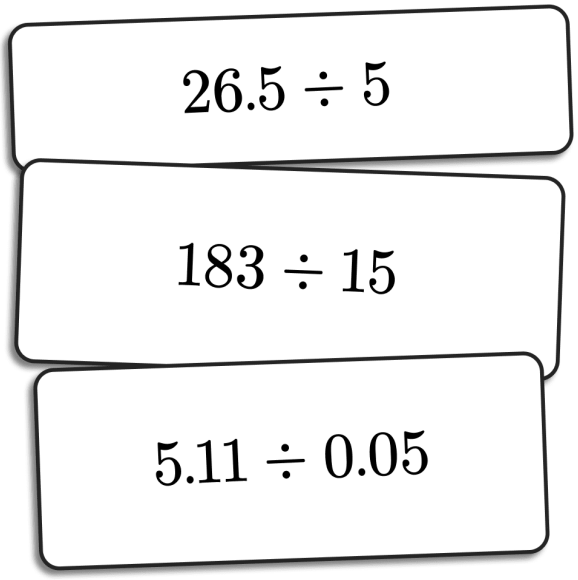
Unit 6.5, Lesson 10: Return of the Long Division Name _____

Lesson Synthesis

What are some things you think are important to remember when dividing with decimals?

Use the examples if they help you with your thinking.



Cool-Down

Calculate the value of $7.1 \div 0.2$. Show all of your thinking.

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Science Mom Lesson 43

Unit 6.5, Lesson 10: Supplement

Name _____

A	B	C
$62 \div 5$	$41 \div 4$	$1 \div 25$
D	E	F
$12.6 \div 0.08$	$5.12 \div 0.05$	$3.7 \div 0.4$
G	H	I
$9 \div 1.2$	$18.6 \div 1.5$	$7 \div 8$
J	K	L
$53.8 \div 5$	$77.4 \div 5$	$7.35 \div 0.3$

Unit 6.5, Lesson 13: Grocery Prices Name _____

Activity 1: Grocery Prices

Tyani and Anika were asked to calculate exactly how much the average household in Washington spends on these groceries. They each wrote expressions to help them.

1.1 Whose work do you agree with? Why?

Tyani's Work	**Anika's Work**
3% of $1500	3% of $1500
$= 0.3 \times 1500$	$= 0.03 \times 1500$

1.2 Calculate 3% of $\$1\,500$. Does this number make sense?

Here is the average weekly household income in three other states (as of 2021).[1]

2. If the average household in each state spends 3% of its income on these groceries, how much would they spend?

Hawaii	**Texas**	**Mississippi**
Weekly income: $\$1\,598$	Weekly income: $\$1\,190$	Weekly income: $\$867$
Expression for 3% of income:	Expression for 3% of income:	Expression for 3% of income:
Predicted spending:	Predicted spending:	Predicted spending:
_____	_____	_____

[1] World Population Review, https://worldpopulationreview.com/state-rankings/median-household-income-by-state

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Unit 6.5, Lesson 13: Grocery Prices Name _____

Activity 2: Bought Milk?

Average Cost of Food Per Week in 2021 (two people)[2]			
Washington: $90	Hawaii: $94.20	Texas: $75	Mississippi: $52

1.1 Use the supplement to answer: How much does a gallon of milk cost in Austin, Texas?

1.2 What percent of the Texas weekly food cost is this?

A. 0.04% B. 0.4% C. 4% D. 40%

Show or explain your thinking.

Wohali said, "Milk is expensive in Jackson. It is 9% of the Mississippi weekly food cost!"

2.1 Show or explain where the 9% comes from.

2.2 Do you agree with Wohali?

If you do, propose a fair price for milk in Jackson.
If you don't, explain why you think milk in Jackson is priced fairly.

3. Select a different place from the supplement.
Would Wohali say milk is expensive there? What do you think? Show or explain your thinking.

Are You Ready for More?

Choose a different food from the supplement whose price you think is too high in one of the places. Use percents, decimals, rates, and/or ratios to propose a fairer price for that food.

[2] Balancingeverything.com, https://balancingeverything.com/average-food-cost-per-month/

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Unit 6.5, Lesson 13: Grocery Prices Name _____

Lesson Synthesis

Select one question and answer it below.

- ☐ What do you think is a fair way to determine prices for groceries in different places?
- ☐ What could you do if you think the price of groceries is high in a place?
- ☐ What new questions do you have about food costs around the world?

Cool-Down

On average, families that make about $\$15\,000$ per year spend 36% of their income on food.

On average, families that make about $\$175\,000$ per year spend 8% of their income on food.[3]

1. Which group spends more money on food?

2. About how much more money do they spend on food per year?

[3] USDA Economic Research Service, https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-prices-and-spending/

Average Grocery Costs in Different Places in 2021[1]

Seattle, Washington

Milk (1 gallon)	3.61
Bread (1 loaf)	3.21
Rice (1 lb.)	2.18
Eggs (1 dozen)	2.96
Cheese (1 lb.)	7.42
Chicken (1 lb.)	4.92
Beef (1 lb.)	6.74
Apples (1 lb.)	2.29
Bananas (1 lb.)	0.82
Oranges (1 lb.)	1.99
Tomatoes (1 lb.)	2.51
Potatoes (1 lb.)	1.10
Onion (1 lb.)	1.19
Lettuce (1 head)	2.05
Total	**$42.99**

Honolulu, Hawaii

Milk (1 gallon)	6.55
Bread (1 loaf)	4.27
Rice (1 lb.)	2.65
Eggs (1 dozen)	4.37
Cheese (1 lb.)	6.84
Chicken (1 lb.)	5.60
Beef (1 lb.)	7.05
Apples (1 lb.)	2.95
Bananas (1 lb.)	1.50
Oranges (1 lb.)	2.57
Tomatoes (1 lb.)	2.88
Potatoes (1 lb.)	1.89
Onion (1 lb.)	2.52
Lettuce (1 head)	3.18
Total	**$54.82**

Austin, Texas

Milk (1 gallon)	3.00
Bread (1 loaf)	2.06
Rice (1 lb.)	1.37
Eggs (1 dozen)	2.50
Cheese (1 lb.)	4.69
Chicken (1 lb.)	3.47
Beef (1 lb.)	5.35
Apples (1 lb.)	1.67
Bananas (1 lb.)	0.57
Oranges (1 lb.)	1.73
Tomatoes (1 lb.)	1.72
Potatoes (1 lb.)	1.05
Onion (1 lb.)	0.97
Lettuce (1 head)	1.79
Total	**$31.94**

Jackson, Mississippi

Milk (1 gallon)	4.68
Bread (1 loaf)	3.66
Rice (1 lb.)	1.95
Eggs (1 dozen)	1.97
Cheese (1 lb.)	5.99
Chicken (1 lb.)	4.75
Beef (1 lb.)	3.98
Apples (1 lb.)	3.66
Bananas (1 lb.)	3.66
Oranges (1 lb.)	2.41
Tomatoes (1 lb.)	2.82
Potatoes (1 lb.)	2.03
Onion (1 lb.)	1.82
Lettuce (1 head)	2.17
Total	**$45.55**

[1] Balancingeverything.com, https://balancingeverything.com/average-food-cost-per-month/

Unit 6.6, Lesson 2: Five Equations Name(s) _____

Activity 1: Equations and Tape Diagrams

Here are five equations.

A.	B.	C.	D.	E.
$x + 5 = 20$	$x = 20 + 5$	$5 \cdot 20 = x$	$5x = 20$	$20x = 5$

1. Select two equations that have something in common.

Equation: _____

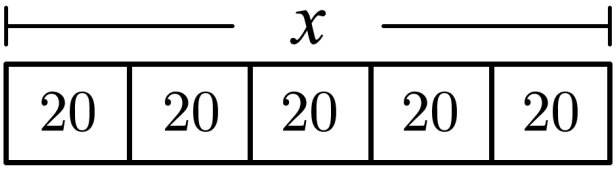
Equation: _____

How are these equations similar?

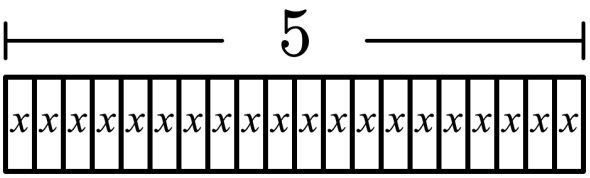
How are they different?

Match each tape diagram with one of the equations above.

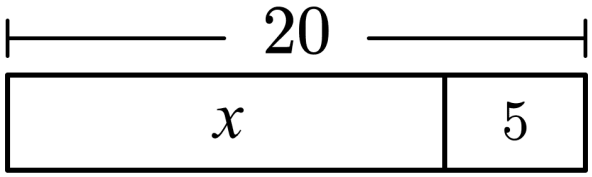
2. Equation: _____



3. Equation: _____



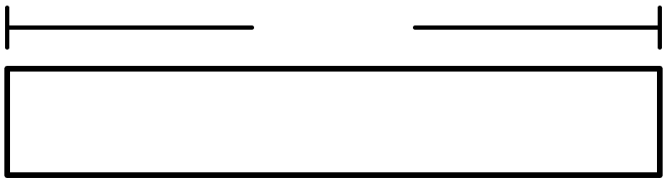
4. Equation: _____



5. Select an equation that **did not** match a tape diagram.

Equation: _____

Draw a tape diagram for this equation.



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Unit 6.6, Lesson 2: Five Equations Name(s) _____

Activity 2: Which Equation?

For each situation, choose the equation that best represents it. Then, determine the solution and explain what the solution means in the situation.

A.	**B.**	**C.**	**D.**	**E.**
$x + 5 = 20$	$x = 20 + 5$	$5 \cdot 20 = x$	$5x = 20$	$20x = 5$

1. Mohamed walked 20 blocks to school each day for 5 days.
   He walked x blocks total.

Equation	**Solution**	**Meaning of Solution**

2. Rebecca has $\$20$ to spend on day passes to ride the subway. Each day pass costs $\$5$.
   She can buy x day passes total.

Equation	**Solution**	**Meaning of Solution**

3. Kwasi rides the bus for a total of 20 stops to get to work. After x stops, he has 5 stops left.

Equation	**Solution**	**Meaning of Solution**

4. **Select an equation** that did not match a situation. Write your own situation that could be represented by the equation you selected.

Equation	**Solution**	**Meaning of Solution**

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Unit 6.6, Lesson 2: Five Equations Name(s) _____

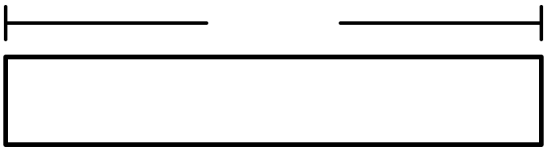
Lesson Synthesis

How can you tell which equation represents a situation?

Use the example if it helps you with your thinking.

Kwasi rides the subway 20 stops to get to work.

After x stops, he has 5 stops left.



☐ $x + 5 = 20$ ☐ $5x = 20$

Cool-Down

Yasmine is biking 5 miles to her friend's house. After she biked 2 miles, she had x miles left to go.

1. Which equation matches this situation?

   A. $2 + x = 5$ B. $2x = 5$ C. $x = 5 + 2$ D. $5 \cdot 2 = x$

2. In this situation, what is the meaning of the solution to the equation?

Unit 6.6, Lesson 5: Swap and Solve Name(s) _____

Activity 1: Stronger and Clearer Each Time

1. Select an equation from the list your teacher shared and determine the solution.

Equation	Solution

2. Write a situation to match this equation.
3. Explain what the variable represents in your situation.

First Draft	
Conversation Notes #1	**Conversation Notes #2**
Second Draft	
Describe what the solution to the equation means in your situation.	

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Unit 6.6, Lesson 5: Swap and Solve Name(s) _____

Activity 2: Trade and Solve

1. Partner's name:

Equation for Their Situation	Solution	Meaning of Solution

2. Partner's name:

Equation for Their Situation	Solution	Meaning of Solution

3. Partner's name:

Equation for Their Situation	Solution	Meaning of Solution

4. Partner's name:

Equation for Their Situation	Solution	Meaning of Solution

5. Partner's name:

Equation for Their Situation	Solution	Meaning of Solution

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Unit 6.6, Lesson 5: Swap and Solve

Name(s) _____

Lesson Synthesis

What do you think is important to remember when writing equations to represent situations?

Takeshi has $\$10$ to spend on laundry.

It costs $\$2.50$ to wash and dry each load.

Takeshi can wash p loads of laundry.

$$2.50p = 10$$

Cool-Down

Here is an equation: $x + 2.5 = 10$.

1. Write a situation to match this equation. Explain what x represents in your situation.

2. Determine the solution to the equation.

3. Explain what the solution means in your situation.

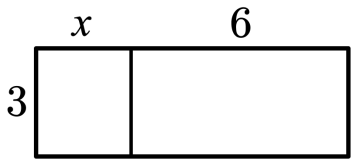
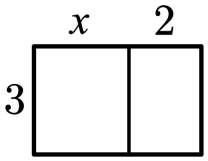
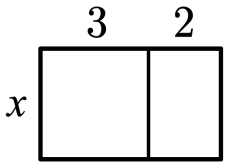
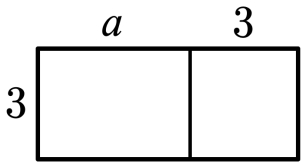
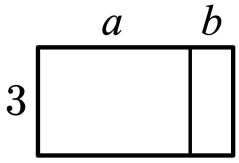
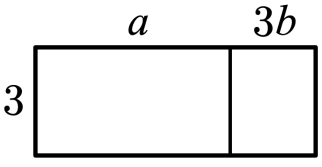
$3(x + 6)$	$3x + 6$	$3(x + 2)$	$(3 + 2)x$
$3x + 18$	$3x + 9$	$3x + 2x$	
$3(a + 3)$	$3a + 9b$	$3a + 9$	$3(a + b)$
$3a + b$	$3(a + 3b)$	$3a + 3b$	

$3(x + 6)$	$3x + 6$	$3(x + 2)$	$(3 + 2)x$
$3x + 18$	$3x + 9$	$3x + 2x$	
$3(a + 3)$	$3a + 9b$	$3a + 9$	$3(a + b)$
$3a + b$	$3(a + 3b)$	$3a + 3b$	

Unit 6.6, Lesson 9: Products, Sums, and Differences Name _____

Activity 1: Card Sort

1. Sort the expression cards into two or more groups according to similarities you see.
2. Match each area model with two expressions for its area. You will have two leftover cards.

	Area Model	Product	Sum
A			
B			
C			
D			
E			
F			

3. Circle one of the expressions above. Explain how you decided which area model it represents.

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Unit 6.6, Lesson 9: Products, Sums, and Differences Name _____

Intermission

$3(k - 2)$	$20 - 5w$

Activity 2: Writing Equivalent Expressions

1. Complete each row in the table by filling in the missing version of the expression.

   Draw an area model if it helps you with your thinking.

	Product	Sum or Difference
A	$7(c - 4)$	
B		$24a + 16b$
C		$18 - 12d$
D	$\frac{1}{2}(8x + 4)$	
E		$4y + 5y$
F	$\frac{1}{3}(9a - 6b)$	

Are You Ready for More?

1. Draw an area model on an index card (or a slip of paper).
2. In the space below, write two area expressions for your area model.
3. Trade area models with a partner. Determine their area expressions.

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Unit 6.6, Lesson 9: Products, Sums, and Differences Name _____

Lesson Synthesis

Explain how you know that $6 - 2x$ and $2(3 - x)$ are equivalent.

Cool-Down

Write an expression that is equivalent to $4(x - 3y)$.

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Science Mom Lesson 55

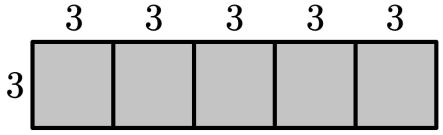
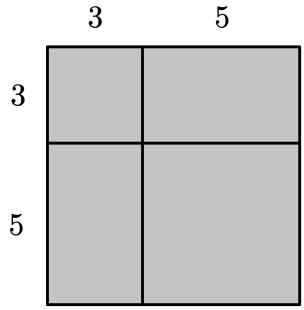
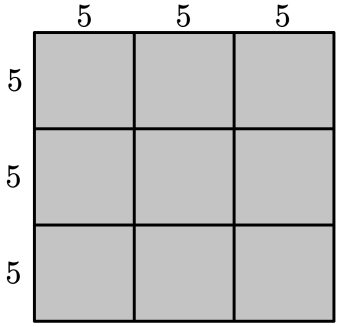
Unit 6.6, Lesson 11: Cards

$5^2 + 3^2$	$(3 + 5)^2$		
$(3 \cdot 5)^2$	34	45	

$5^2 + 3^2$	$(3 + 5)^2$		
$(3 \cdot 5)^2$	34	45	

Unit 6.6, Lesson 11: Exponent Expressions Name _____

Activity 1: What's Missing?

	Diagram	Expression	Value
1		$5 \cdot 3^2$	
2			
3			
4			

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Unit 6.6, Lesson 11: Exponent Expressions

Activity 2: Partner Problems

Partner A	Partner B
1. $5^2 + 4$	1. $2^2 + 25$
2. $9 \cdot 2^1$	2. $3 \cdot 6^1$
3. $3 \cdot 4^2$	3. $12 \cdot 2^2$
4. $(7 + 2)^2$	4. $17 + 4^3$
5. $5^2 + 2$	5. $(1 + 2)^3$
6. $\frac{1}{9} \cdot \left(\frac{1}{2}\right)^3$	6. $\frac{1}{8} \cdot \left(\frac{1}{3}\right)^2$
Are you ready for more? Write an expression with an exponent that has the same value as your partner's but uses different numbers.	**Are you ready for more?** Write an expression with an exponent that has the same value as your partner's but uses different numbers.

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Unit 6.6, Lesson 11: Exponent Expressions

Lesson Synthesis

What are some things to remember when determining the value of expressions with exponents?

Use these examples if they help you with your explanation.

$5 \cdot 3^2$

$(3 + 5)^2$

$(3 \cdot 5)^2$

$5^2 + 3^2$

Cool-Down

Determine the value of these expressions.

1. $2 \cdot 4^2$

2. $(2 + 4)^2$

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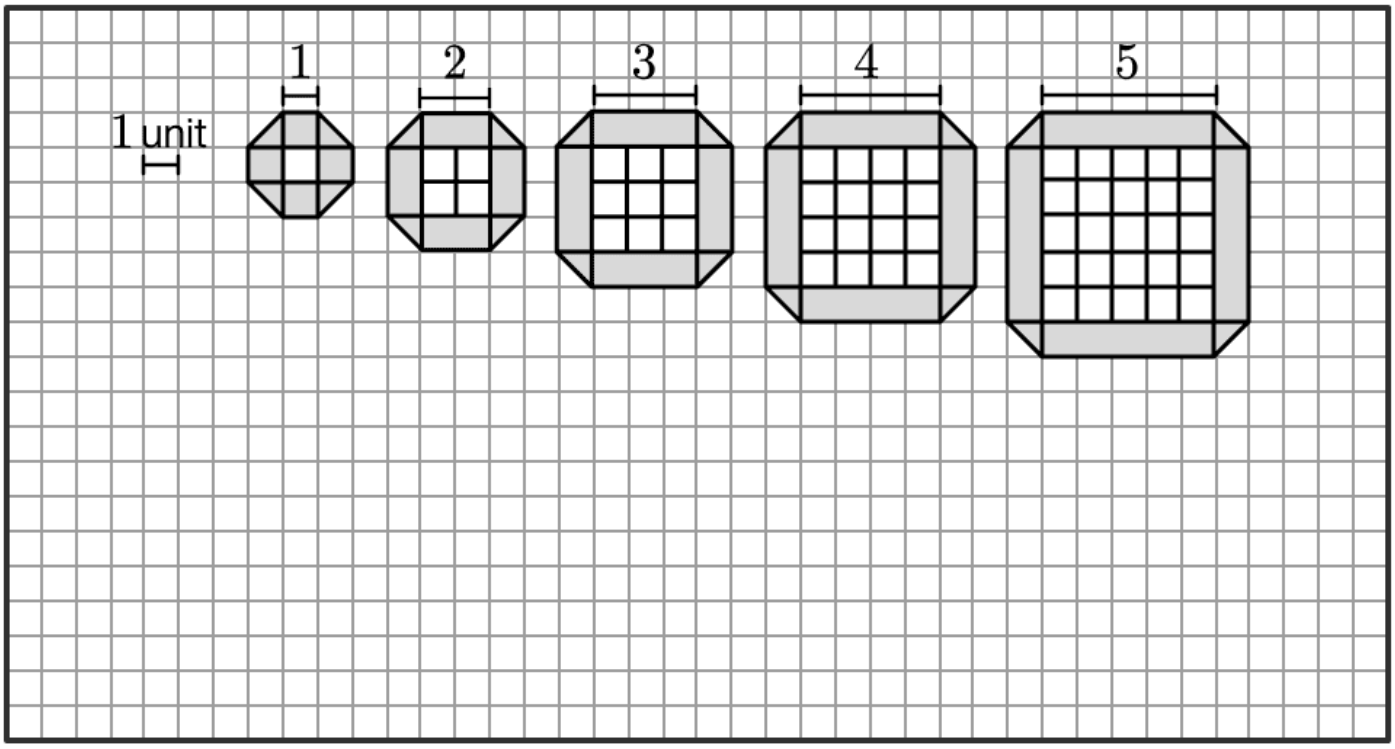
Science Mom Lesson 58

Unit 6.6, Lesson 14: Supplement

Name _____



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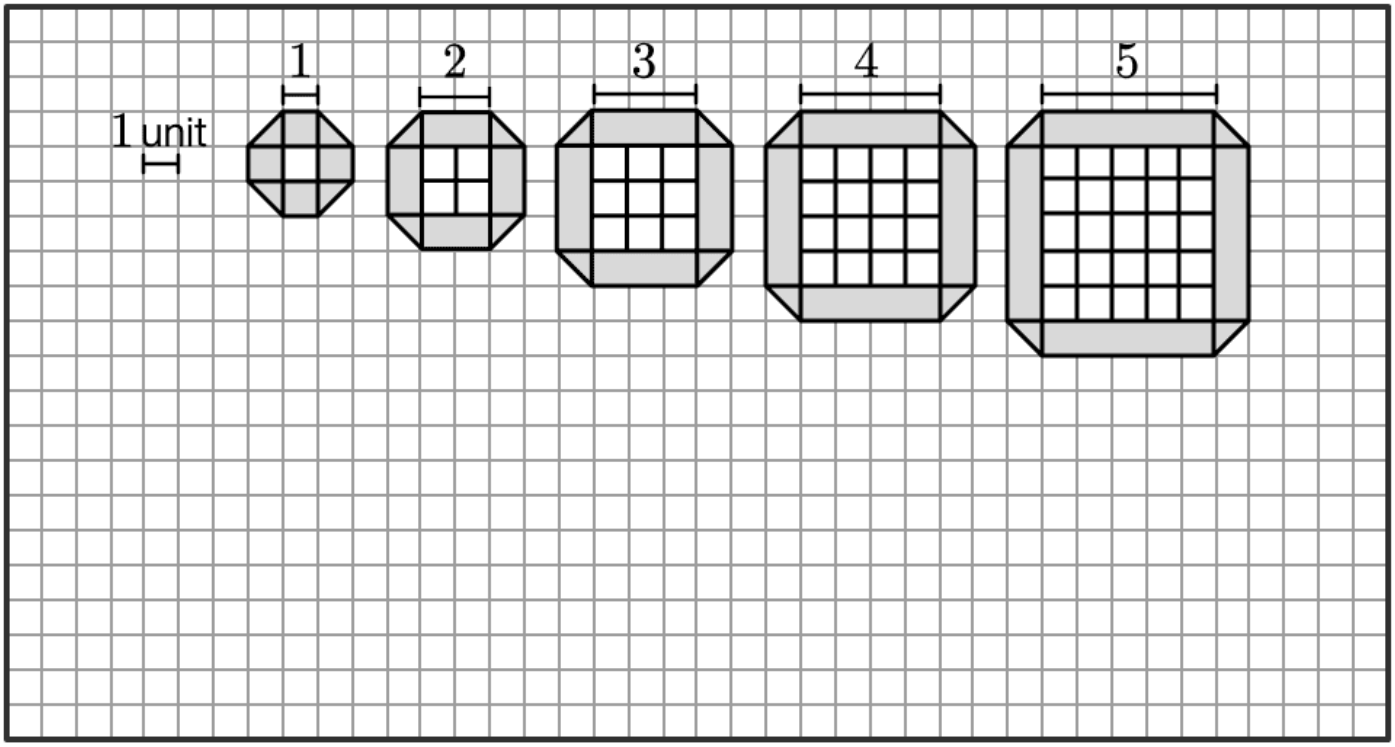
Unit 6.6, Lesson 14: Supplement

Name _____



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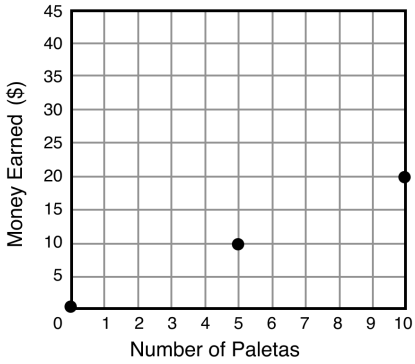
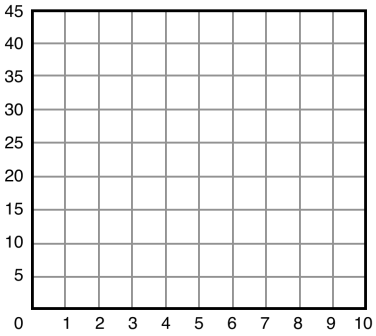
Science Mom Lesson 59

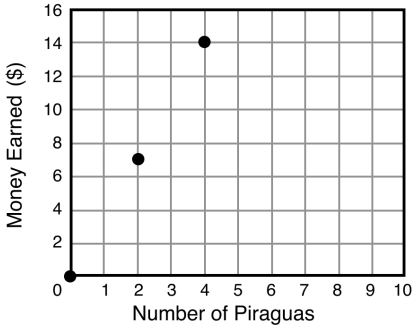
Unit 6.6, Lesson 15: Cards

p	m
2	5
4	10
10	25





p	m
0	0
5	10
10	20

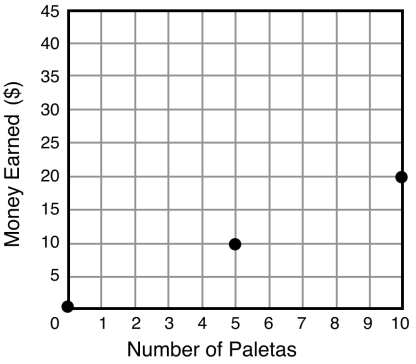


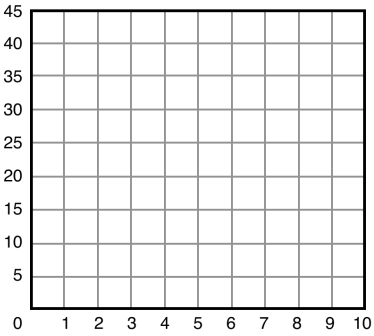
$m = 3.50p$

$m = 2.50p$

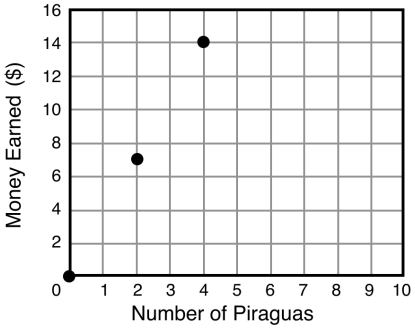
---

p	m
2	5
4	10
10	25





p	m
0	0
5	10
10	20



$m = 3.50p$

$m = 2.50p$

Unit 6.6, Lesson 15: Connecting Representations Name_____

Activity 1: What's Missing?

	Situation	Table	Graph	Equation
1	Amanda sells paletas for $2 each. What is the total amount of money she can earn?			
2	Tameeka sells paletas for $2.50 each. What is the total amount of money she can earn?			
3	Esteban sells piraguas for $3.50 each. What is the total amount of money he can earn?			

1. Choose one row above. Circle or highlight the price per item in each representation.

2. Angel sells piraguas for $4.50 each. How will Angel's graph be different from Esteban's?

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Unit 6.6, Lesson 15: Connecting Representations Name_____

Activity 2: Rough Draft Graph

Sora sells popsicles for $3 each. She made a table and a graph to help her understand how much money she can make.

Number of Popsicles	Money Earned ($)
0	0
1	3
3	9
4	12
6	18

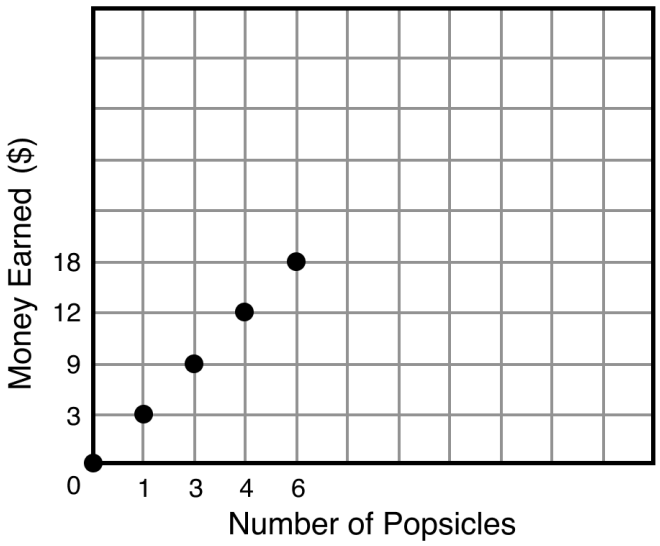
Her table is correct, but her graph is not quite right.

1.1 What is one thing she did well in her graph?

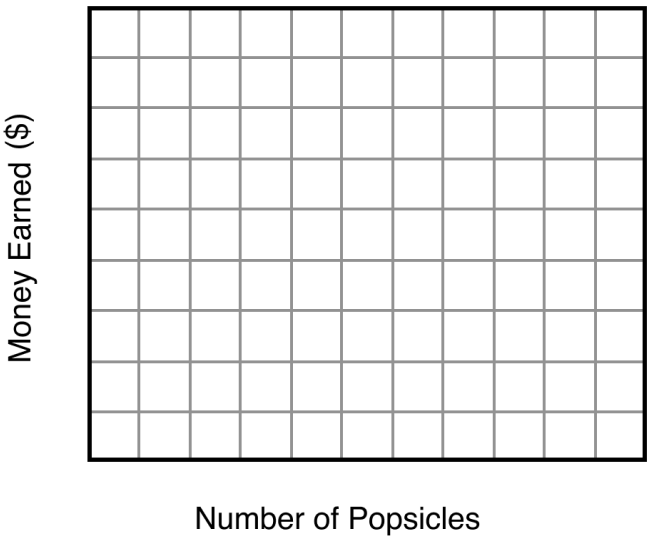
1.2 What is one thing you would change about her graph?

2. Use Sora's table to create a second draft of her graph.

Sora's Rough Draft



Second Draft



3. Circle one point on your graph. Explain what that point means in Sora's situation.

4. What are some other mistakes a person might make when they are creating a graph?

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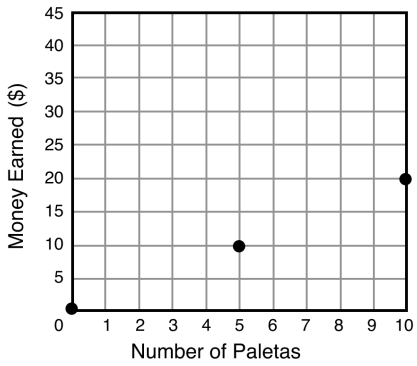
Unit 6.6, Lesson 15: Connecting Representations Name_____

Lesson Synthesis

Explain how you can show that tables, equations, or graphs represent the same relationship. Use the example if it helps you with your explanation.

Amanda sells paletas for $\$2$ each. What is the total amount of money she can earn?	<table><tr><th>p</th><th>m</th></tr><tr><td>0</td><td>0</td></tr><tr><td>5</td><td>10</td></tr><tr><td>10</td><td>20</td></tr></table>		$m = 2p$

Cool-Down

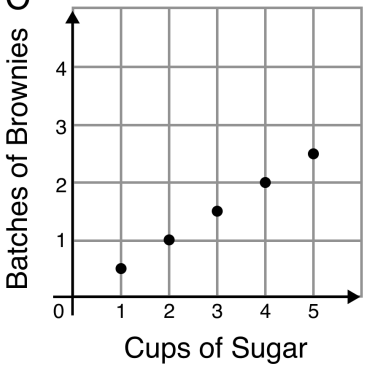
It takes $\frac{1}{2}$ of a cup of sugar to make each batch of brownies.

Which graph represents the relationship between batches of brownies and cups of sugar?

A

B

C



Explain how you know.

Unit 6.6, Lesson 16: Subway Fares Name _____

Activity 1: Consider the Costs

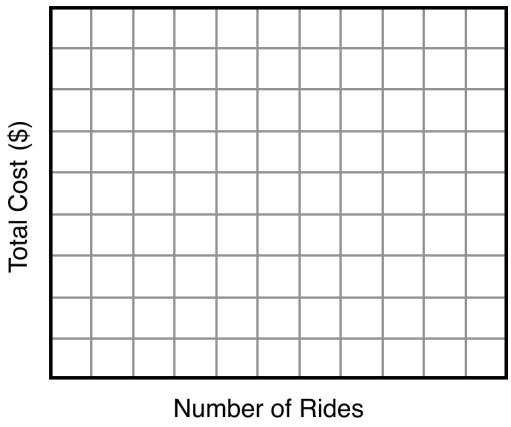
The Metropolis Transit Association (MTA) is in charge of the public buses and subways in Metropolis.

An MTA sales clerk wants to help customers understand how much each option costs.

1. As a group:
   - Create a table, graph, and equation for each option.
   - Label the independent variable and the dependent variable.
   - Write 2–3 sentences comparing and contrasting the graphs for the three options.

Sample

Table	**Graph**	**Equation**
# of Rides | **Total Cost ($)**	Total Cost ($) / Number of Rides	r = the number of rides c = total cost



2. On the supplement: Read about four people who ride the subway and choose one to help. Make sure each person in your group chooses a different customer.

   Customer I am helping: _____

   Which fare option should your customer choose? **Regular Fare / Unlimited / Reduced Fare**

   Use the tables, graphs, and equations you made earlier to support your argument.

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Unit 6.6, Lesson 16: Subway Fares Name _____

Activity 2: Increased Fares

The MTA needs more money to help maintain the subway service, so they are thinking about raising the regular fare by $\$0.25$.

1. Describe one advantage and one disadvantage of raising the fare by $\$0.25$. Explain your thinking for each.

2. Look back at your work for the **regular fare**. How would raising the fare by $\$0.25$ change:

The table?	The graph?	The equation?

3. For which of the four customers will the fare increase have the greatest impact? Explain your thinking.

4. If you were the MTA, how would you adjust the fares to get the money you need to maintain service while also charging customers fairly?

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Unit 6.6, Lesson 16: Subway Fares Name _____

Lesson Synthesis

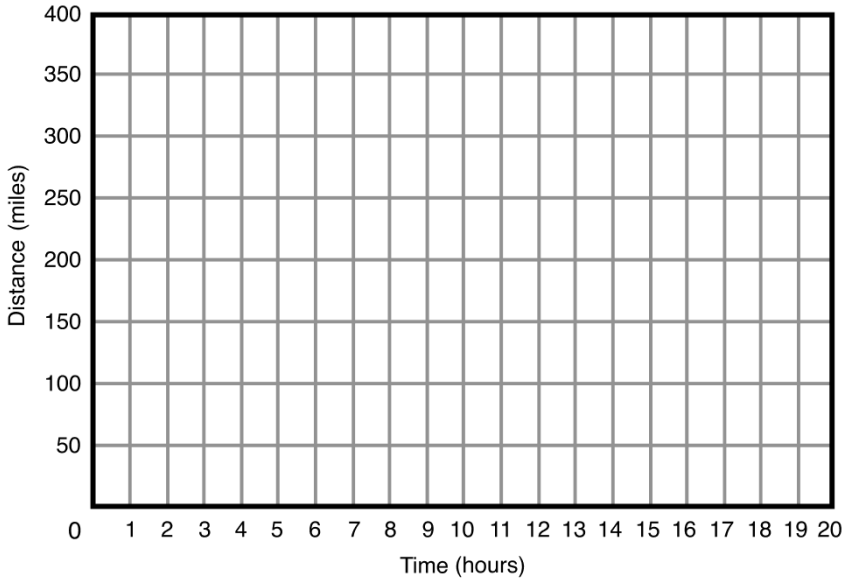
How can making a graph and a table help us understand relationships in the world, such as subway ticket prices?

Cool-Down

A train is traveling from one station to another at a constant speed of 50 miles per hour.

1. Complete the table with the amounts of time it takes the train to travel certain distances.
2. Create a graph that represents this relationship.

Time (hours)	Distance (miles)
2	
7	
	150
	200



Warm-Up

Option 1 Regular Fare	Option 2 Unlimited 7-Day Pass	Option 3 Reduced Fare
		 *For people who have low income, are 65 or older, or who have a qualifying disability.*

Activity 1: Consider the Costs

☐ Eliza is 70 years old. She works at a daycare about 1.5 miles away from her house. Sometimes she walks to work and sometimes she takes the subway. She rides the subway between 2–8 times per week.	☐ Nikhil is 23 years old. He uses a wheelchair and it takes him 20 minutes to get to the closest wheelchair-accessible subway station from his house. Nikhil works as a chef and uses the subway to get to and from work five days a week.
☐ Sydney is 20 years old. They are a college student and work part time. They use the subway to get to school and work. They usually ride between 15–20 times per week.	☐ Bao is 16 years old. He walks to school during the week and only uses the subway on the weekends to visit friends.

Unit 7.2, Lesson 3: Sugary Drinks Name(s) _____

Activity 1: Orange Juice

1. A 12-ounce bottle of orange juice contains 33 grams of sugar. Complete the table to determine the amount of sugar in different sizes of orange juice.

Orange Juice		
	Volume (oz.)	Sugar (grams)
Glass	8	
Bottle	12	33
Carton	32	
Jug	128	

2. What is the constant of proportionality in this relationship?

3. What does the constant of proportionality tell us in this situation?

4. If a person wanted to consume exactly 50 grams of sugar from orange juice, how many ounces would they need to drink?

Activity 2: Other Sugary Drinks

1. Here is some information about three new beverages. Complete the tables.

Apple Cider		
	Volume (oz.)	Sugar (grams)
Plastic Bottle	8.5	
Large Cup	10	
Glass Bottle	25	31

Carbonated Soda		
	Volume (oz.)	Sugar (grams)
Can	12	
Personal Bottle	20	77
Large Bottle	68	

Energy Drink		
	Volume (oz.)	Sugar (grams)
Mini Can	5	
Regular Can	8	27
Jumbo Can	12	

2. Which drink is the most sugary? Explain your thinking.

3. Is the relationship between a beverage's volume and its grams of sugar always proportional?

   Explain your thinking.

4. This table shows the weight and the amount of sugar of four different candies.

	Weight (grams)	Sugar (grams)
Candy A	48	30
Candy B	44	28
Candy C	57	31
Candy D	52	33

Is this relationship proportional?

If yes, what is the constant of proportionality?
If no, explain why it is not proportional.

Are You Ready for More?

Arjun's goal for this week is to drink no more than 100 grams of sugar from all of his beverages combined. The first table shows Arjun's plan for this week. Try to make a **different** plan to get close to 100 grams of sugar without going over.

Arjun's Planned Beverages	Sugar (grams)
A bottle of orange juice	33
Half a can of carbonated soda	23.1
A regular can of energy drink	27
4 ounces of apple cider	4.96
3 ounces of carbonated soda	11.55
Total:	99.61

Your Planned Beverages	Sugar (grams)
Total:	

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Unit 7.2, Lesson 3: Sugary Drinks Name(s) _____

Lesson Synthesis

Here are instructions for cooking instant rice in the microwave:

Ingredients

Rice (cups)	1	2	3
Water (cups)	$1\frac{1}{2}$	3	$4\frac{1}{2}$

Cook Time

Rice (cups)	1	2	3
Time (min.)	7	11	15

1. Which relationships are proportional (if any)?

2. For any proportional relationships, determine the constant of proportionality and explain what it means.

Cool-Down

When you mix two colors of paint in equivalent ratios, the resulting color is always the same. Each row of the table represents a way to make the same shade of green paint.

Cups of Blue Paint	Cups of Yellow Paint
2	10
1	5
6	30
52	260

1. What is the constant of proportionality in this relationship?

2. What does the constant of proportionality mean in this problem?