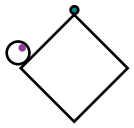
LETTER HOME

Patterns in Data

Dear Family Member:

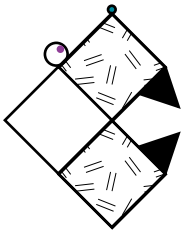
In this unit, students will examine patterns in data that are represented on line plots, in rule machines, and that is organized on a coordinate grid. Students will travel to the Amazon rain forest as they read two stories about real-life situations involving data collection. In one story, they will hear about the family organization of armadillos and in the other, students will analyze the locations of the dens of Giant River Otters.

Students will also explore number patterns organized in tables and represented as rules. For example, if the rule is *double*, and the input is 7, the output is 14. Rule Machines help students develop problem solving strategies. Students then apply these strategies to analyzing growth patterns.



one-year-old L-Gator

In the later part of this unit, students also analyze data that is collected and organized on a coordinate grid with the help of a figure called Mr. Origin. Students then use this map to locate and measure the distance between locations on the coordinate map.

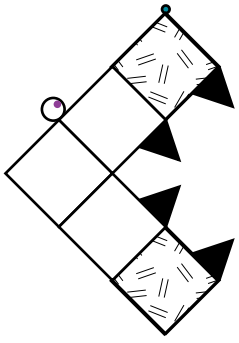


two-year-old L-Gator

As your child explores number patterns, help your child by:

Surveying Family Members. Invite your child to conduct a survey at home on topics such as the number of hours each family member spends watching television during one weekend or the number of letters in everyone's first name.

Drawing a Map. Draw a simple map of how your child travels from home to school and let your child follow it on the way to school.



three-year-old L-Gator

Math Facts and Mental Math

Students' fluency with the subtraction facts related to the addition facts in all the groups will be assessed in this unit.

You can help your child review these facts using the flash cards the teacher sent home or by making a set of flash cards from index cards or scrap paper. Study the facts in small groups each night. As your child goes through the flash cards, put the cards in three stacks: Facts I Know Quickly, Facts I Can Figure Out, and Facts I Need to Learn.

For Facts I Need to Learn, work on strategies for figuring them out.

For Facts I Can Figure Out, use the flash cards to practice the facts for fluency.

For Facts I Know Quickly, help your child use strategies to solve problems like these using mental math: 200 − 100 (practices 20 − 10), 900 − 400 (practices 9 − 4).

Thank you for taking the time to support our math activities at home.

Sincerely,

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Name _____ Date _____

Unit 15: Home Practice

Part 1 Math Facts Practice

A. $9 + 8 = \square$

B. $6 + \square = 13$

C. $14 - 9 = \square$

D. $7 + \square = 15$

E. $13 - \square = 6$

F. $15 - \square = 9$

G. $4 + \square = 13$

H. $8 + \square = 16$

I. $7 + \square = 14$

J. $9 + 9 = \square$

K. Explain your strategy for solving Question E.

L. One week Julia babysat for 9 hours. The next week she babysat for 12 hours.

1. How many more hours did she babysit in the second week?

2. How many hours did she babysit in the two weeks together?

3. Julia's aunt pays her $2.00 for each hour. How much did she pay Julia in the two weeks? Show how you know.

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Part 2 Sharing Fairly

1. Draw 5 dog bowls. Share 15 bones.

How many will each dog get? _____

2. Draw 3 party bags. Share 19 gumballs.

How many gumballs will be in each bag? _____

3. The pet shop owner has 17 bags of kitty treats. She needs 2 bags of kitty treats every day. How many days will the kitty treats last? Show or tell how you know.

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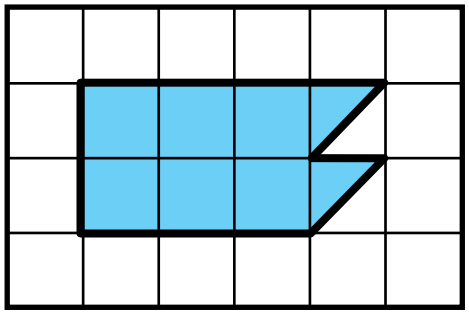
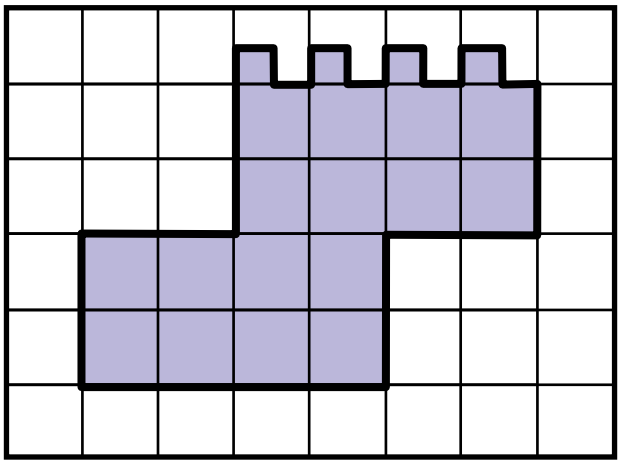
Part 3 Area of Shapes

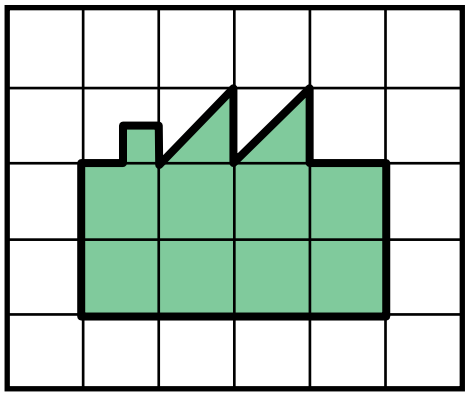
Find the area of each shape in square centimeters.

1. 

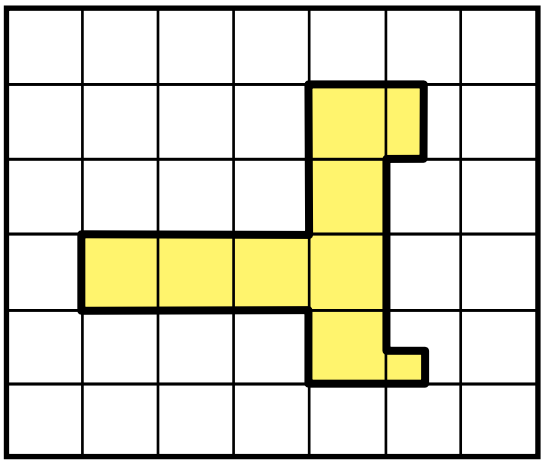
Area _____

2. 

Area _____

3. 

Area _____

4. 

Area _____

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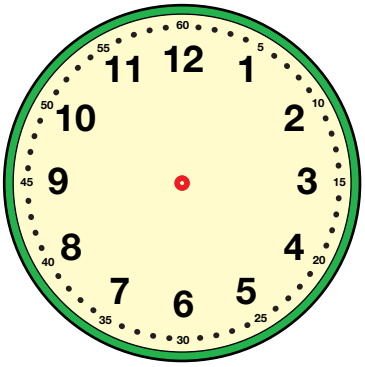
Part 4 Time for Exercise

Draw the times on the clocks. Write the times on the lines.

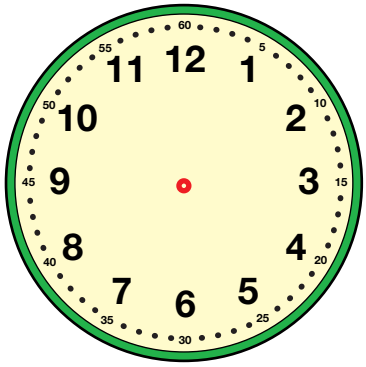
1. Luis can walk to Mark's house in 25 minutes. What time should he leave to be at Mark's house at 4:00?



_____

Time Luis
should leave
if he walks

2. If Luis rides his bike, it takes him 10 minutes. What time should he leave to be at Mark's house at 4:00?



_____

Time Luis
should leave
if he rides his bike

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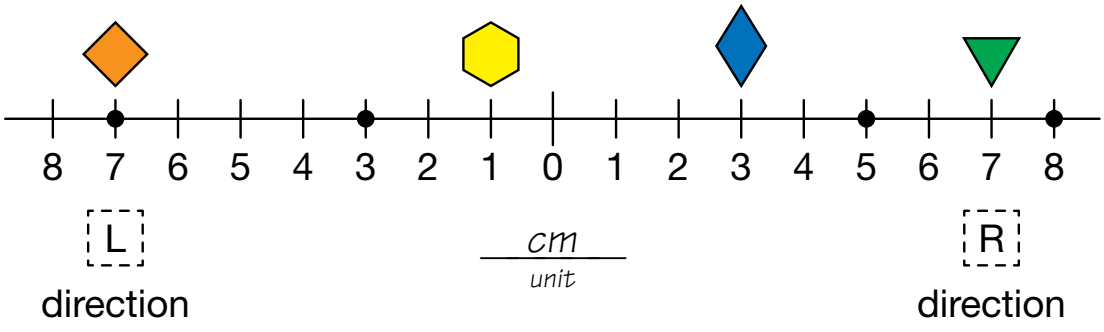
Part 5 Distance on the Axis

1. Fill in the data table.

Shape	Distance (from 0 in cm)	Direction
rhombus		
square		
triangle		
hexagon		



2. A. What is distance between the triangle and hexagon?

_____

B. Show or tell how you know.

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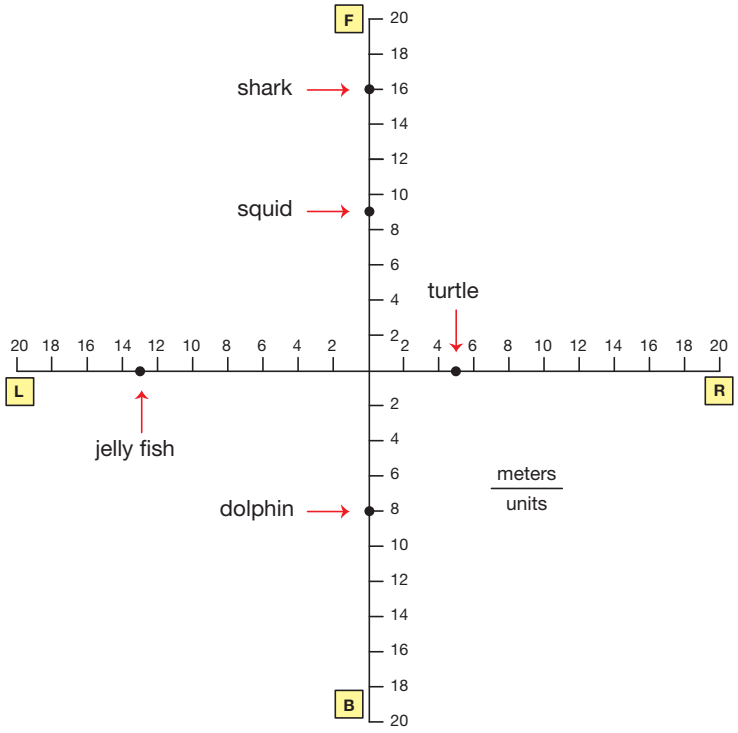
Part 6 Animal Map



1. Is the shark in front of the squid or in back of it?

_____

2. How far is the squid from the shark? Write a number sentence.

_____

3. How far is the jellyfish from the turtle? Write a number sentence.

_____

4. How far is the jellyfish from the dolphin? Write a number sentence.

_____

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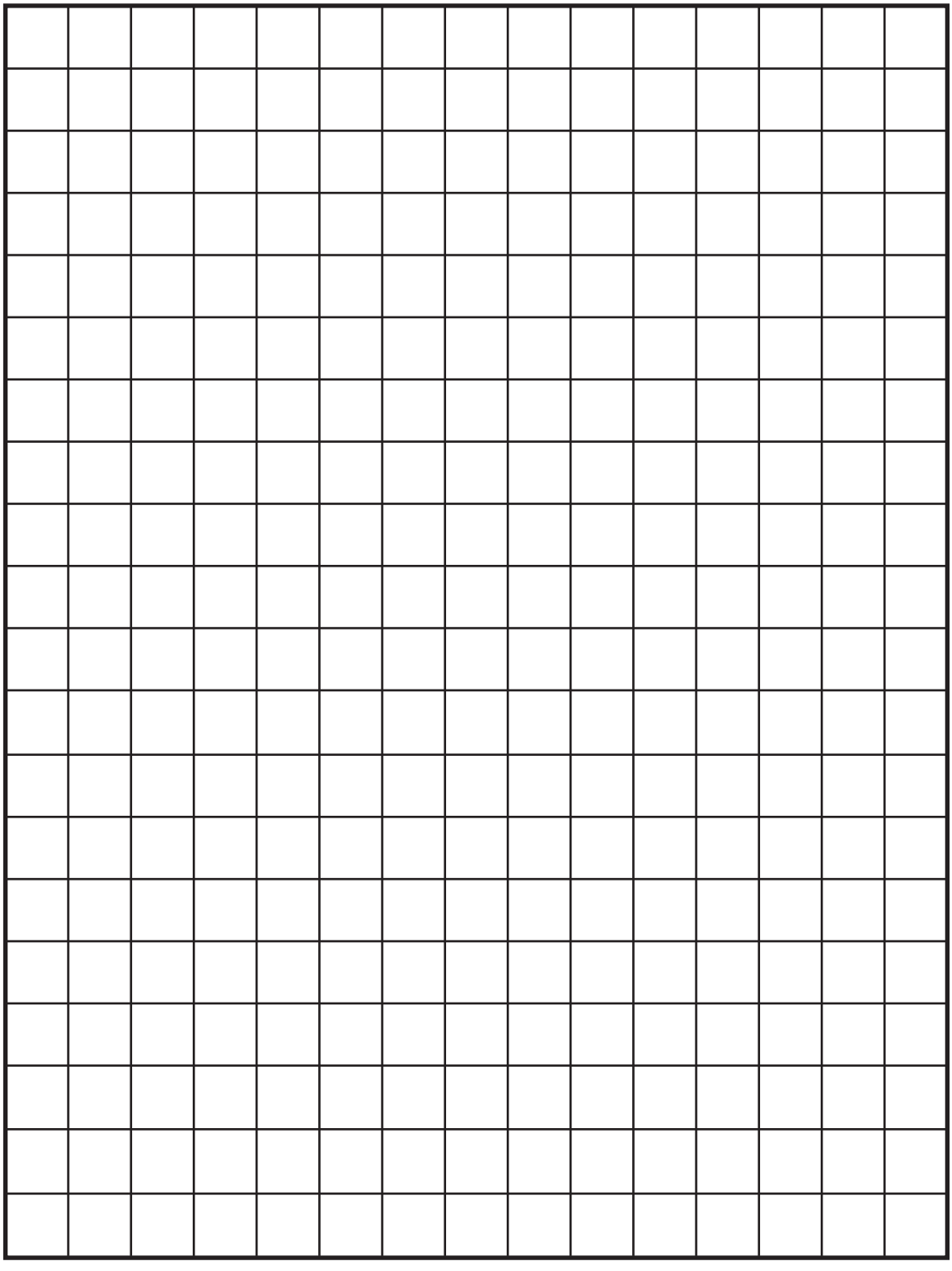

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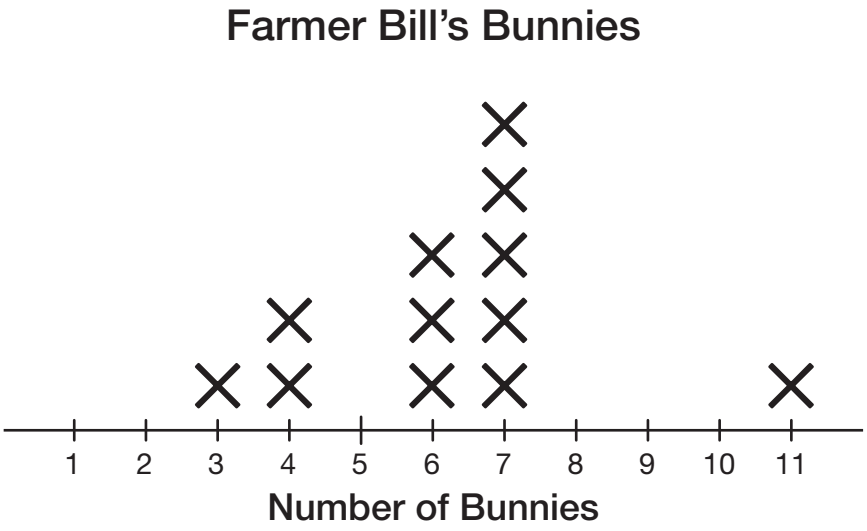
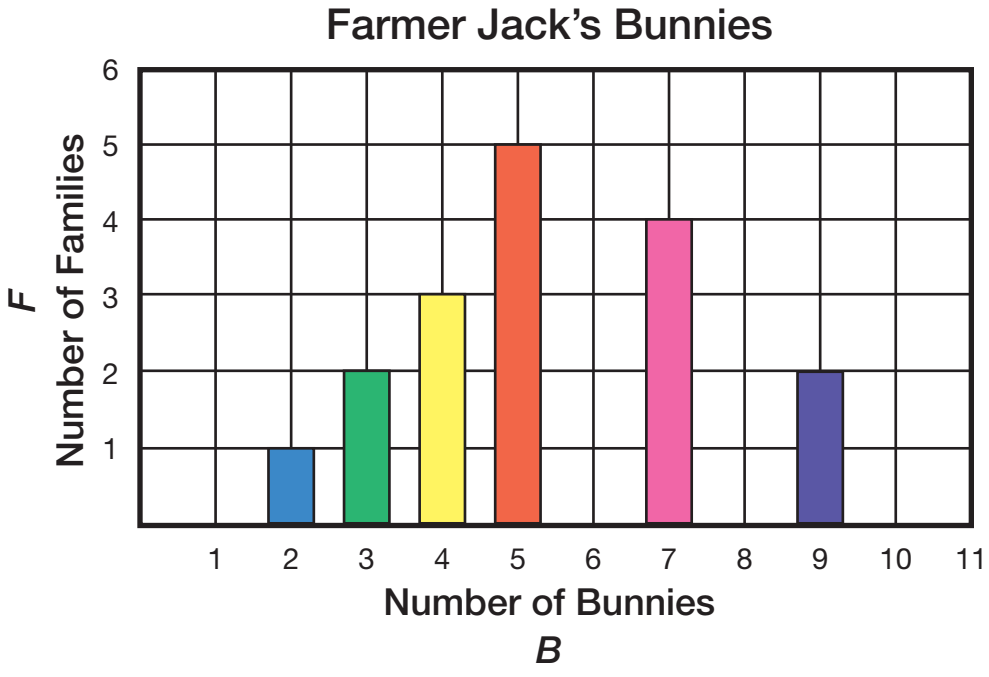
Litters of Bunnies





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Counting Kids at Home

The _____family

Number of kids in my family including me:

_____

Name	Age
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Parent Initial _____

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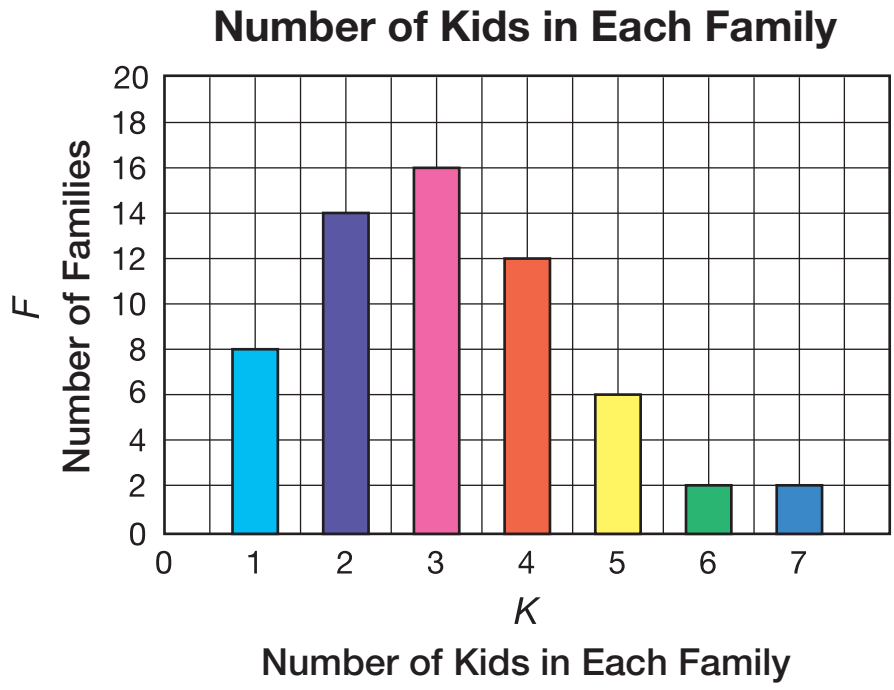
Cody and Derek Count Kids

Homework

Cody and Derek made a graph of their *Counting Kids* data.



1. What is the most common number of kids in a family? _____

2. How many families have five or more kids? _____

3. How many families have fewer than three kids? _____

4. What is the range of number of kids in the class's families?

_____ to _____

5. How many families were included in the survey? _____

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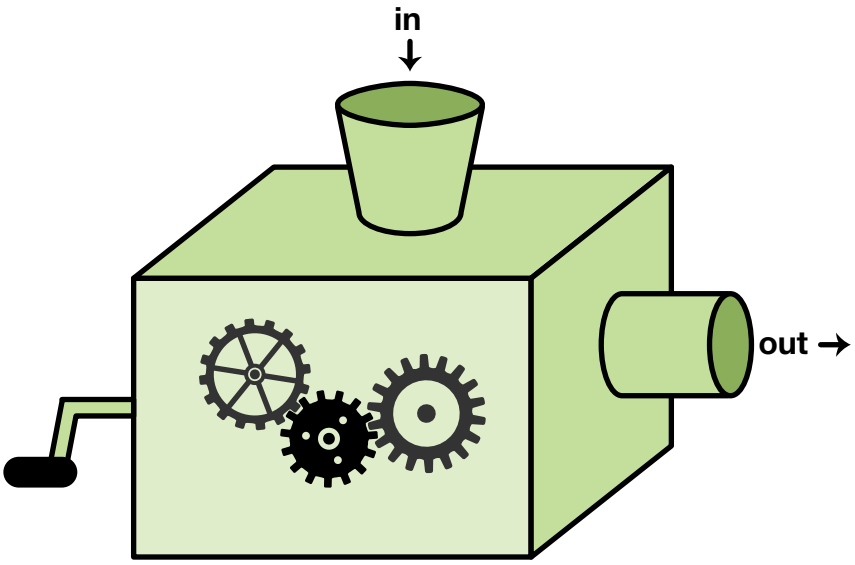
Rule Machine



Rule:

Input	Output	Number Sentence

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Rule Machine Tables

Homework

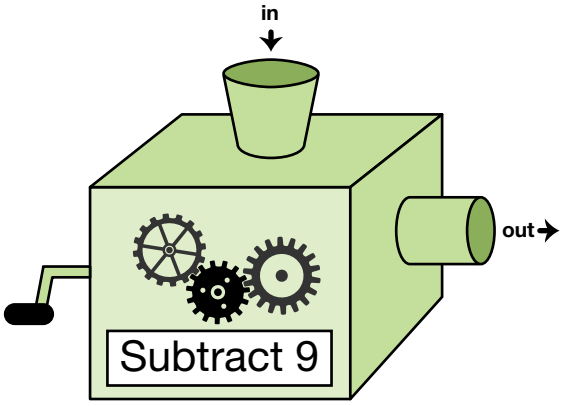
Dear Family Member:

In class, we have been working with rule machines. A rule machine applies various rules to input numbers to generate output numbers. For example, if the rule is "Add 4", and the input number is 2, the output number is 6.

$2 + 4 = \boxed{6}$

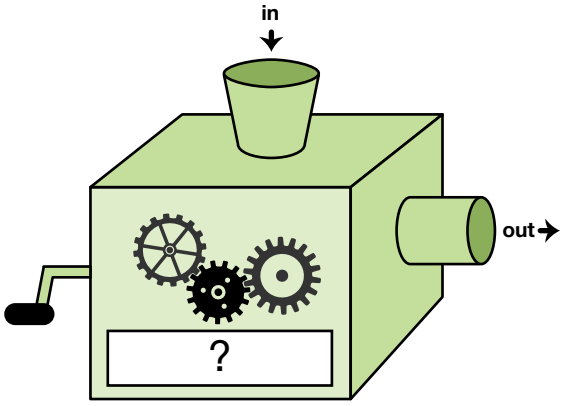
Thank you.

Fill out the tables for these Rule Machines.



Rule: Subtract 9

Input	Output
9	
11	
13	
	5
	7
18	
21	
25	



Rule:

Input	Output
1	7
3	9
5	11
	14
	15
	18
14	
20	

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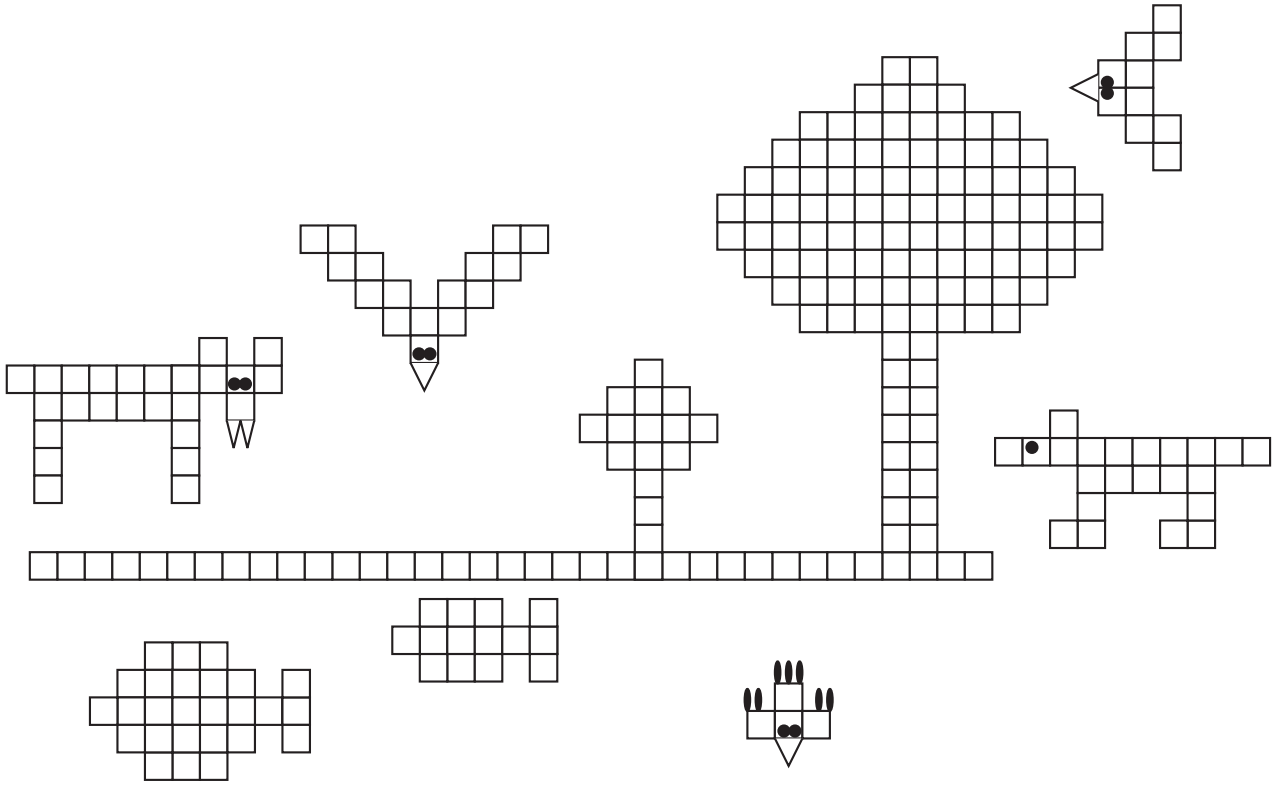
Planet Gzorp

Far, far away there is a planet called Gzorp. You can find many strange and beautiful things on Gzorp.



Some of the plants and animals on Gzorp are made of all squares. The plants and animals that are made of squares grow by adding more squares. Different kinds of plants and animals add squares in different ways.

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Three-Eyed Exopus

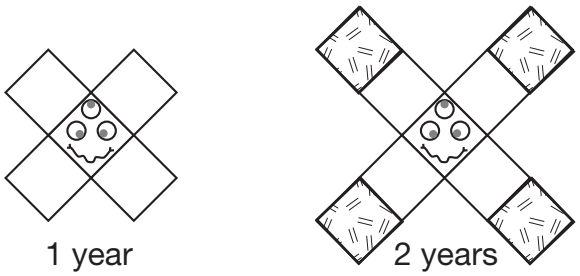
Homework

Dear Family Member:

In class, we have been identifying, describing, and extending number patterns. To solve the problems, your child can draw a picture, make a data table, or use addition strategies.

Thank you.

The Three-Eyed Exopus has five squares when it is one year old. It has nine squares when it is two years old.



1 year 2 years

1. How many squares does it grow each year? _____

2. Draw a four-year-old Three-Eyed Exopus.

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3. How many squares does a ten-year-old Three-Eyed Exopus have? _____ Show your work.

4. How old is a Three-Eyed Exopus with 33 squares? _____ Show your work.

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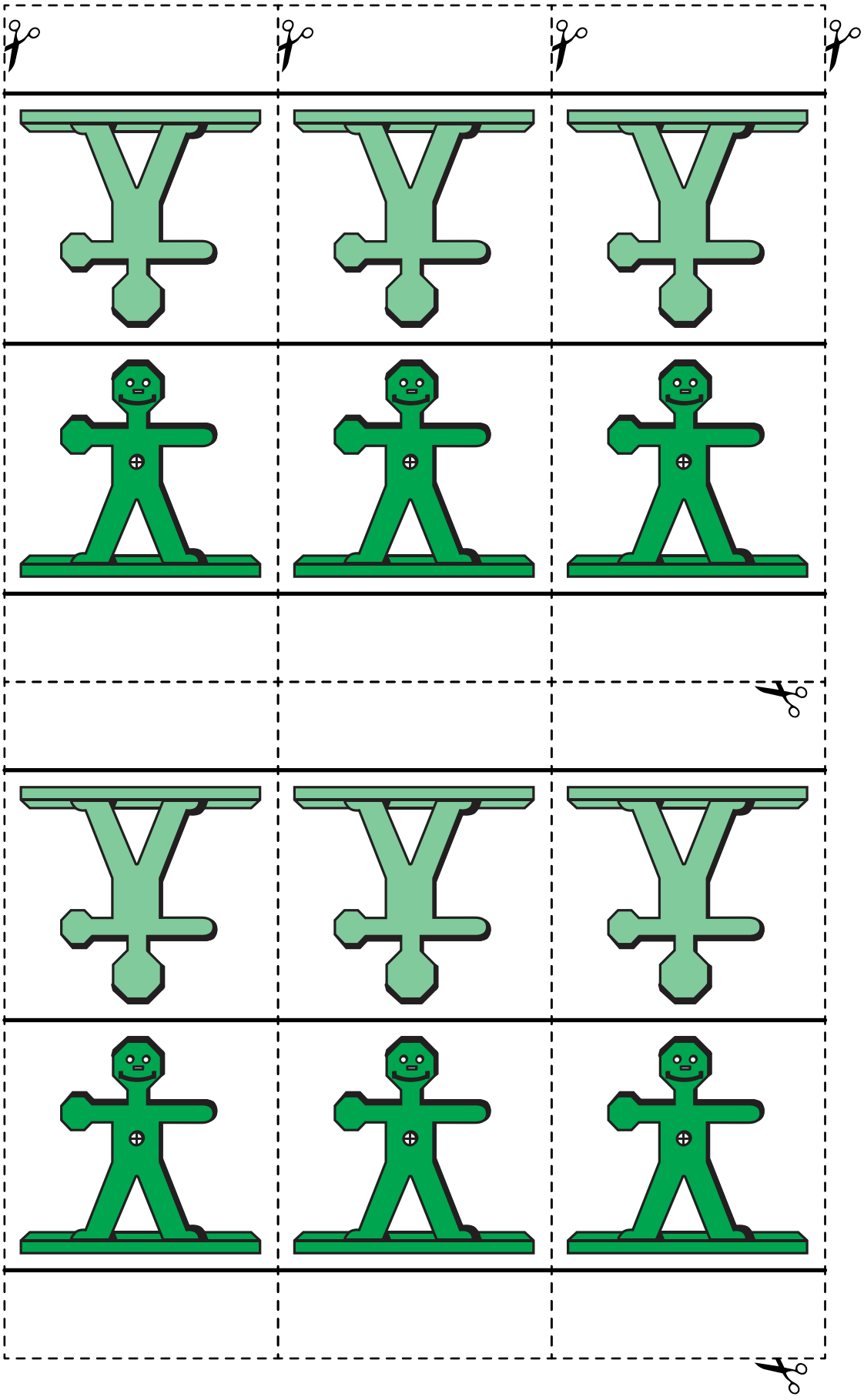
Mr. Origin



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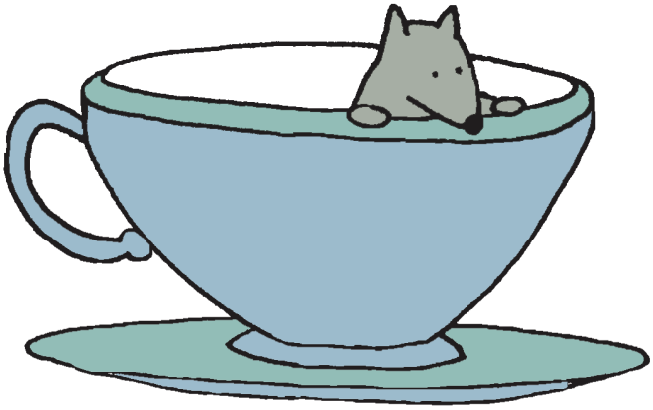
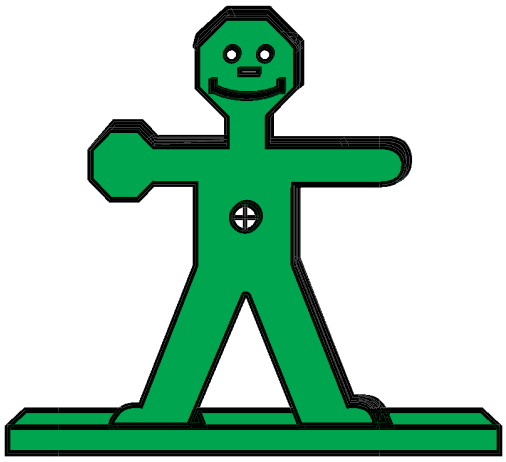
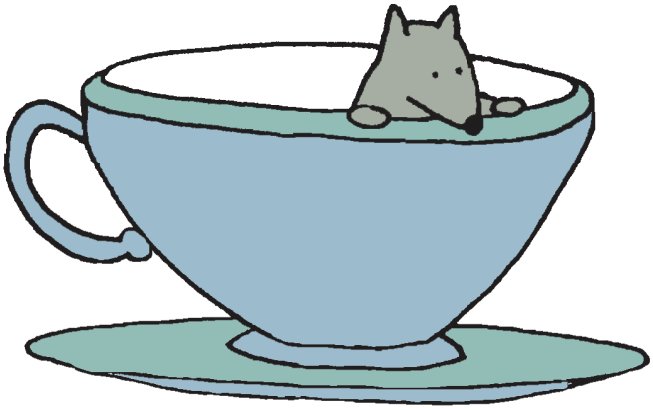
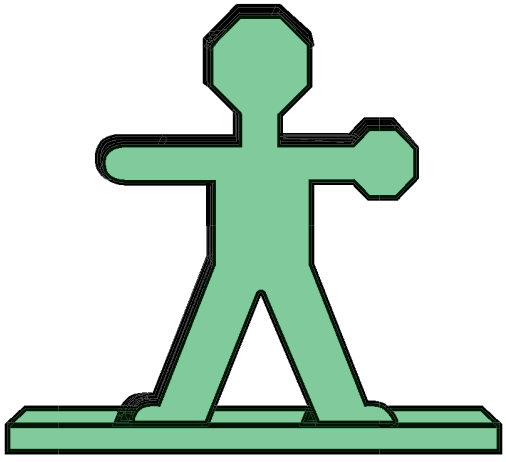
Look at Mr. Origin and the Cup









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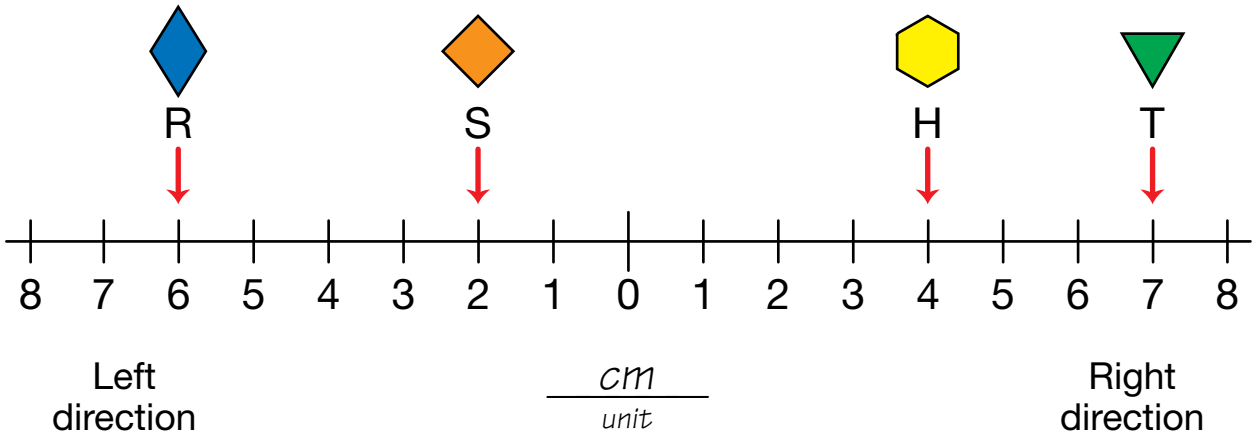
Sam's Map

Homework

Sam made another map and put the shapes in different places. Here's the map.



Look at the map.

1. Where would Mr. Origin stand? _____

2. Tell where each shape is.

Sam's Map

Shape	Distance (in cm)	Direction (Right or Left)
hexagon H		
rhombus R		
square S		
triangle T		

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Name _____ Date _____

Jessie's Desk

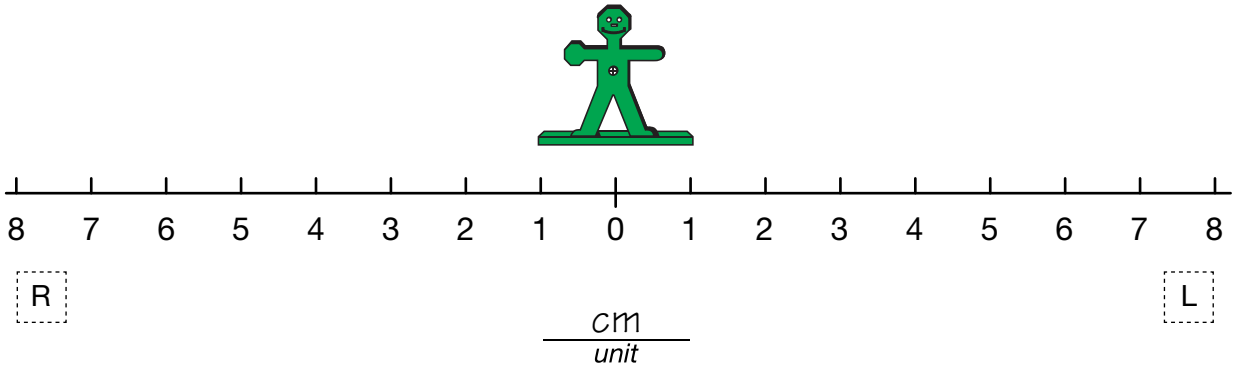
Homework

Jessie has a Mr. Origin on her desk. She uses a ruler to measure distances. Here is her data table.

Jessie's Desk

Object	Distance (in cm)	Direction (Right or Left)
rock	8 cm	R
penny	8 cm	L
tile	5 cm	R

1. Draw the rock, penny, and tile on the map below.



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Use Jessie's map to answer the following questions.

2. How far is the rock from the tile? _____

Number sentence _____

3. How far is the penny from the rock? _____

Number sentence _____

4. How far is the penny from the tile? _____

Number sentence _____

5. Which object is closest to Mr. Origin? _____

6. Which object is farthest from Mr. Origin? _____

7. Which object is the farthest to the right? _____

8. Which object is the farthest to the left? _____

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Rain Forest Animals

snake	turtle	parrot	howler monkey	spider monkey	armadillo
snake	turtle	parrot	howler monkey	spider monkey	armadillo

Cut Here

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Master

Name _____ Date _____

Key for Rain Forest Trails

Use your Rain Forest Trails model to complete the data table.

Rain Forest Trails Model _____

Animal	Distance (in cm)	Direction
armadillo		
spider monkey		
howler monkey		
parrot		
turtle		
snake		

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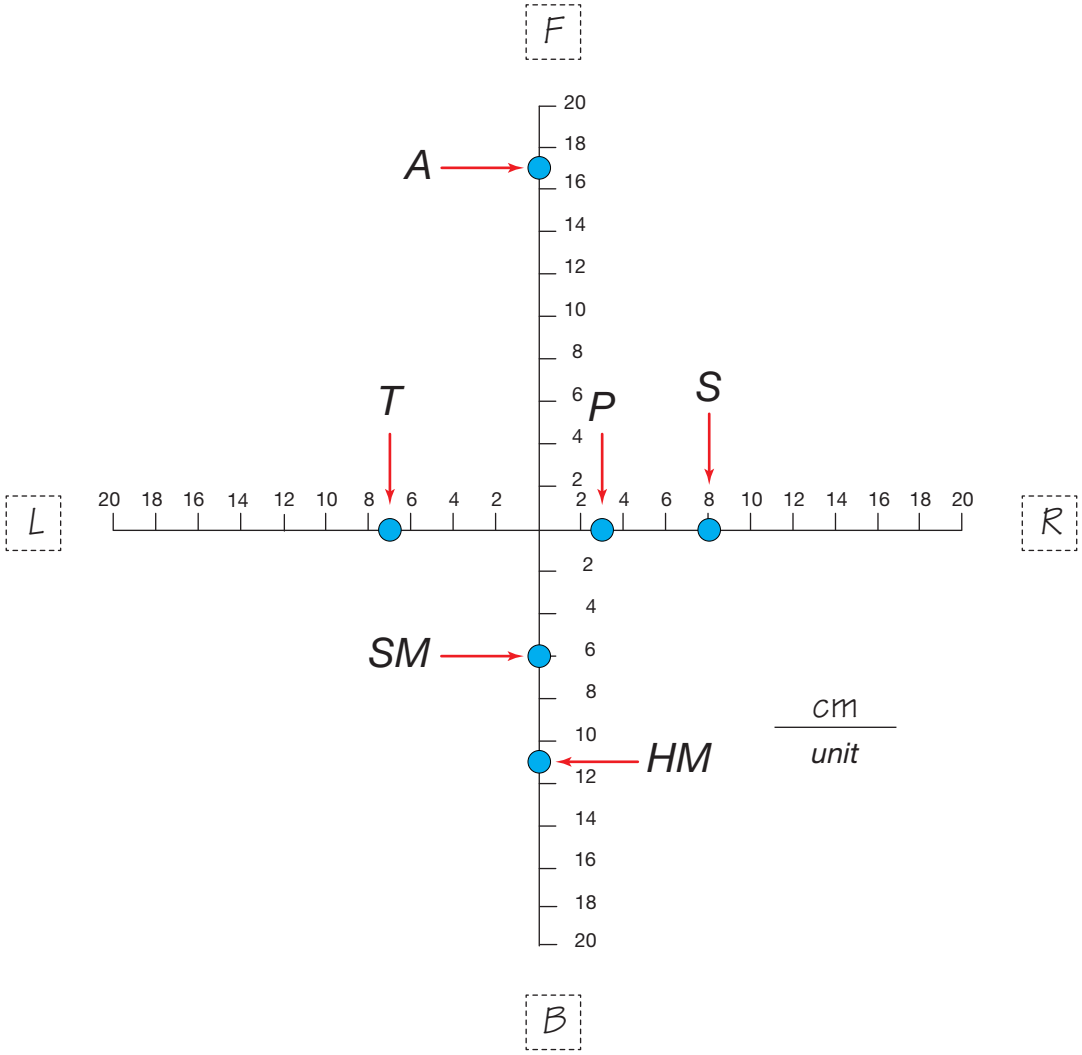
My Rain Forest Map



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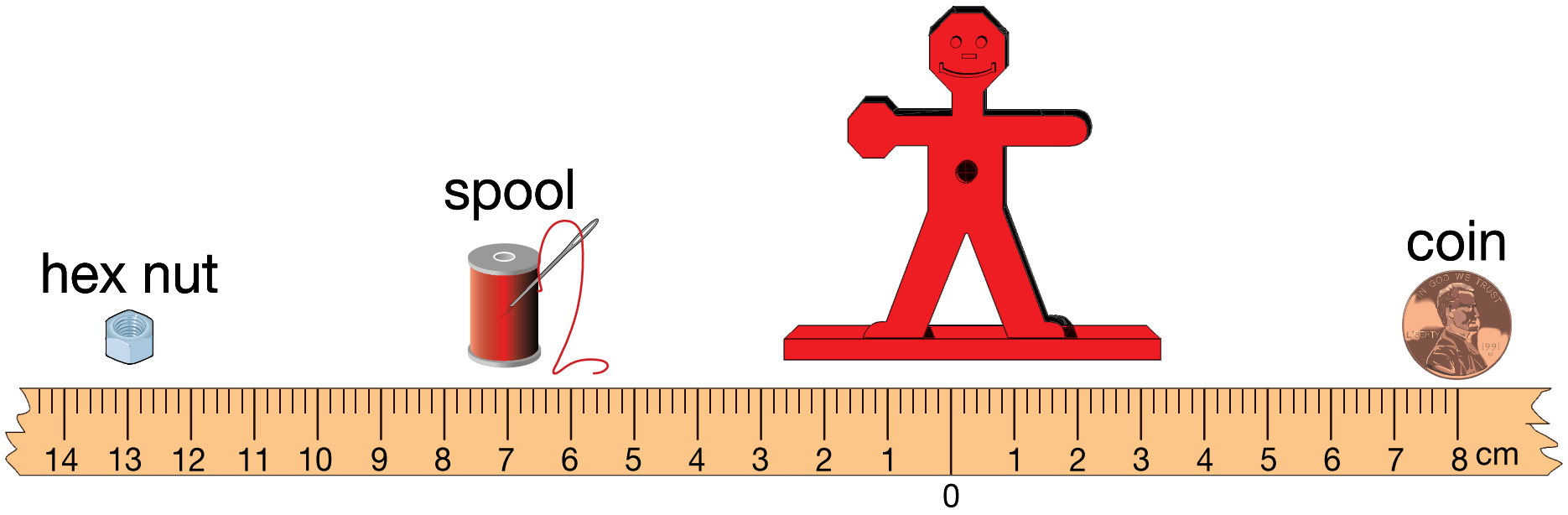
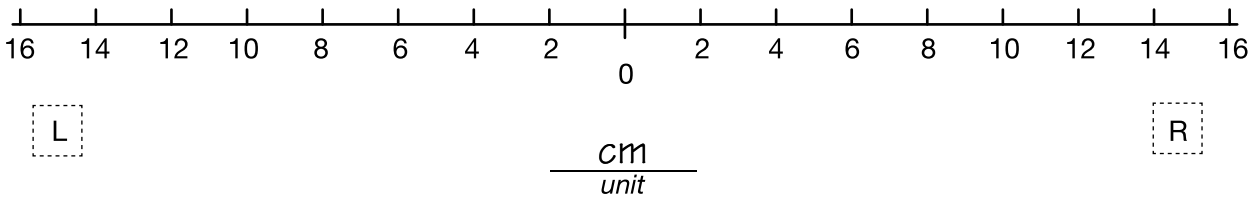
Changing Direction



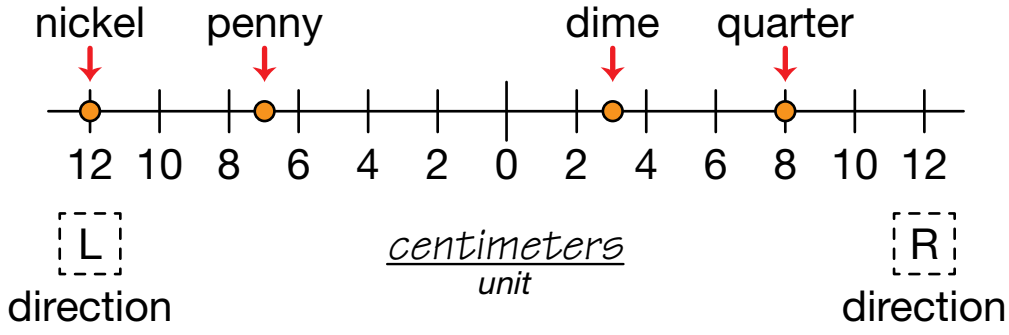


Name _____ Date _____

Nicholas Finds Some Coins

Homework

Nicholas found some coins. He lined the coins up on his desk and made a map to show the location of each coin.



1. Fill in the data table to show the location of each coin.

Nicholas's Coins

Coin	Distance (in centimeters)	Direction (Right or Left)
penny		
nickel		
dime		
quarter		

2. How far is the nickel from the quarter? Write a number sentence.

_____

3. How far is the dime from the penny? Write a number sentence.

_____

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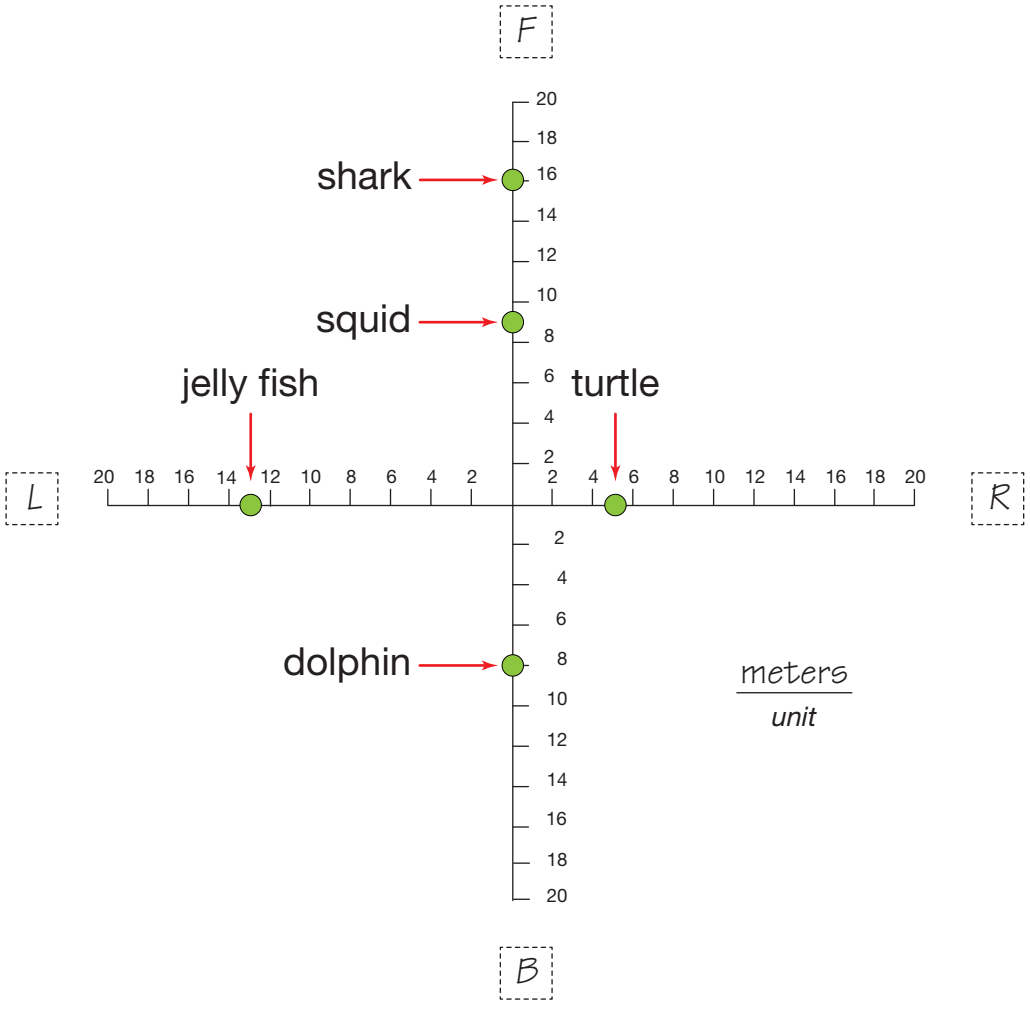
Mr. Origin at the Seaside

Homework

Dear Family Member:

Students have been locating objects on a map using directions (left, right, front, back) and measuring distance on perpendicular axes. In this assignment, they use the map to solve comparative word problems involving length.

Thank you.



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1. What direction is the shark from the squid?

_____

2. How far is the squid from the shark? Write a number sentence.

_____

3. How far is the jellyfish from the turtle? Write a number sentence.

_____

4. How far is the jellyfish from the dolphin? Write a number sentence.

_____

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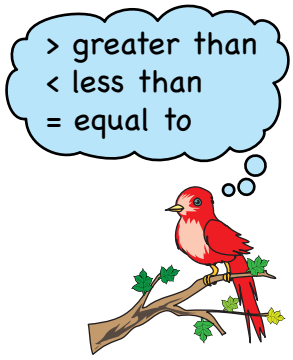
Name _____ Date _____

End-of-Year Test

Part 1

You may use base-ten pieces, a number line, an individual clock, and the *Addition Strategies Menu* and *Subtraction Strategies Menu* in the *Student Activity Book* Reference section.

1. Fill in the circle with >, <, or = to make each statement true.



A. $9 + 5 \bigcirc 10 + 4$

B. $6 + 5 \bigcirc 15 - 2$

C. $6 + 9 \bigcirc 7 + 9$

D. $15 - 8 \bigcirc 3 + 4$

E. $14 - 8 \bigcirc 12 - 7$

2. Circle True or False for each problem.

A. 3 hundreds + 4 tens + 2 ones = 342	True	False
B. 216 = 2 hundreds + 16 ones	True	False
C. 115 = 100 + 5	True	False
D. 200 + 30 + 8 = 238	True	False
E. 10 + 10 + 10 + 1 = 30 + 1	True	False

3. Place a number in the box to make the number sentence true.

A. $100 + 20 + 4 = 50 + 50 + 10 + \square + 4$

B. $10 + 10 + 10 + 10 + 10 + 2 = \square + 2$

C. $5 + 5 + 6 = \square + 6$

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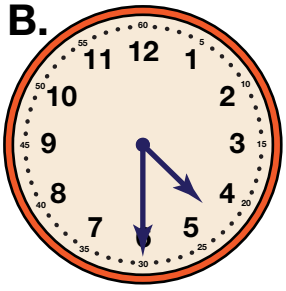
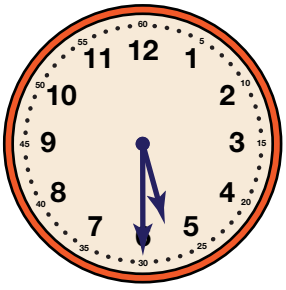
4. Write the time under each clock. Use your individual clocks and number lines to tell how many minutes have passed. Circle the activity you could do in that many minutes. Choose AM or PM.

Start Time	End Time	How Many Minutes Have Passed?	What Could Have Happened?	AM or PM
A. _____	_____		Work on math in math class Eat dinner	
B.  _____	 _____		Work on homework Eat lunch	

5. Frank had 81 newspapers to deliver. By noon, he had finished delivering 39 newspapers. Estimate how many newspapers he had left. Show or tell how to estimate the answer.

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6. Diana had to solve this problem for homework:

$$\begin{array}{r} 54 \\ -\ 28 \\ \hline \end{array}$$

A. Use base-ten pieces to solve 54 − 28.

B. Use expanded form to solve 54 − 28.

C. Use the compact method to solve 54 − 28.

$$\begin{array}{r} 54 \\ -\ 28 \\ \hline \end{array}$$

D. Check your answer by solving it another way or by using addition.

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Show or tell how to solve each problem below.

7. A. Natasha put 50 cc of water in her graduated cylinder. She placed an object in the water and the water level went up to 82 cc. What is the volume of her object?

B. Levi put 80 cc of water in his graduated cylinder. He placed an object in the water and the water level went up to 84 cc. What is the volume of his object?

C. Whose object has the greater volume: Natasha's or Levi's?

_____

8. Circle True or False for each problem.

A.	$3 + 3 + 3 + 3 = 4 \times 3$	True	False
B.	$5 + 5 + 5 + 5 = 5 \times 5$	True	False
C.	$2 \times 4 = 2 + 2 + 2$	True	False

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9. Emily is making 4 shirts. Each shirt will have 5 buttons. How many buttons does she need?

A. Circle the number sentence you would use the solve the problem.

$4 + 5 =$ $4 \times 5 =$

B. Show or tell how to solve the problem.

Draw a picture for each problem and write a number sentence.

10. Make 4 rows of 5.

Number sentence _____

11. Make 4 rows of 3.

Number sentence _____

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Circle True or False for each statement. Show or tell how you know.

12. 3 rows of 5 = 5 rows of 3 True False

13. 3 rows of 3 = 2 rows of 4 True False

Part 2

You may use a number line, base-ten pieces, a ruler, pattern blocks, and the *200 Chart*, *Addition Strategies Menu* and *Subtraction Strategies Menu* in the *Student Activity Book* Reference section.

14. Circle all the number sentences that have an even number for the sum.

A. 4 + 4

B. 8 + 8

C. 3 + 3 + 1

D. 9 + 9

E. 7 + 7 + 1

F. 1 + 1 + 1

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Solve each problem and write a number sentence. Show or tell how you solved each problem. Remember to label your answers.

15. Nisha bought 5 rows of stickers. Each row has 5 stickers. Each sticker costs 3 cents.

A. How many stickers did Nisha buy?

Number sentence _____

B. What is the total cost of all the stickers?

Number sentence _____

Solve each problem and write a number sentence. Show or tell how you solved each problem. Remember to label your answers.

16. Chris has 3 cups. He put 6 beans in each cup. How many beans does he have?

Number sentence _____

17. Rosa has 20 apples. She wants to give each of her friends 4 apples. How many friends can share the apples?

Number sentence _____

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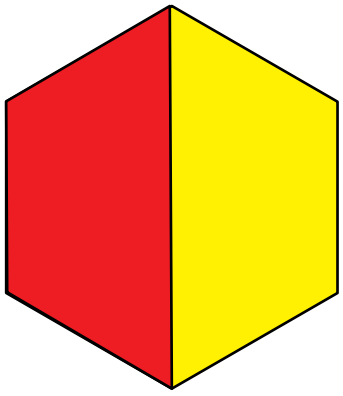
18. The zookeeper has 16 bananas. He wants to give each monkey a fair share of the bananas. If there are 4 monkeys, how many bananas will each monkey get?

Number sentence _____

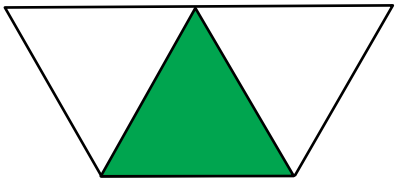
19. Look at the pictures of the shapes. Use the words in the box to fill in the spaces with the correct answers.

half	**fourth**	**third**	**sixth**	**eighth**

A. The red trapezoid is one-_____ of the yellow hexagon.



B. The green triangle is one-_____ of the red trapezoid.



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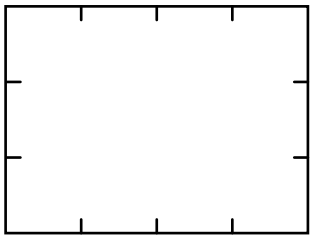
20. This is a whole. 

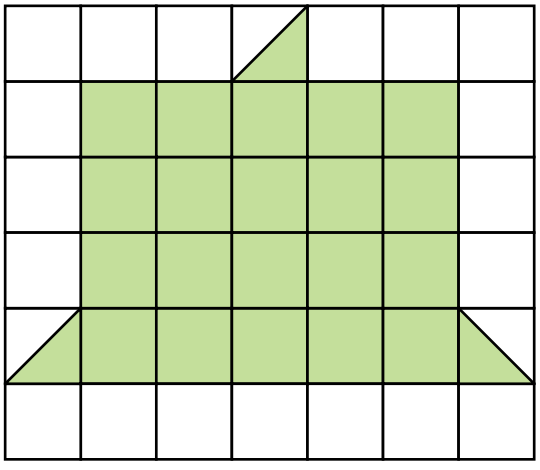
A. Use a ruler and the tick marks to draw a grid on the rectangle. What is the area of the rectangle?

_____

B. Shade in one-half of the rectangle. How many squares did you shade?

_____

21. Find the area of the shape below. Remember to include units in your answer.



Area _____

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22. Solve the problems below two different ways: use a mental math strategy and a paper-and-pencil method.

A.
$$\begin{array}{r} 364 \\ +\ 217 \\ \hline \end{array}$$

Mental Math Strategy

Paper-and-Pencil Method

B.
$$\begin{array}{r} 786 \\ -\ 329 \\ \hline \end{array}$$

Mental Math Strategy

Paper-and-Pencil Method

23. Fill in the missing values in the Rule Machine. Write the rule.

Rule:

Input	Output
1	2
3	6
4	
6	12
	16
10	

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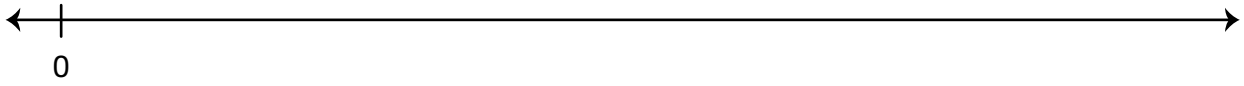
24. Model the number on the number line. Write a number sentence that shows how the base-ten hopper hopped on the number line.

A base-ten hopper made 2 hops of 100, 3 hops of 10, and 4 hops of 1. What number did it land on?

_____



Number sentence _____

25. Place the numbers in order from smallest to largest.

A. 922, 1045, 958

_____

B. 348, 299, 801

_____

C. 1004, 1010, 987

_____

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