



Fifth Grade Centers



Expression Set

Materials:

Deck one and two of expression cards
Several centimeter cubes or other counters
Blank cards for extension activity

How to Play:

Place one cube and the answer sheet in the center of the table. Shuffle the cards and pass out four cards to each player. Players take a minute to look at their cards. When everyone is ready each player passes one card to the person on her/his left. Players continue to pass one card to the left until a player completes a set. That player grabs the cube from the center. The winner places his/her cards face up for everyone to check. If the set is correct, that player keeps the cube. If the player is incorrect, they lose a cube and play continues.

Play continues until one player gets three cubes. Players may switch back and forth from deck one to deck two.

Extensions:

- » As an extension the players may create their own set of expression cards.
- » The same decks of cards could be combined and two or more players could play *Go Fish* or *Concentration* with the cards.

Answer Key

$$n + 3$$

the sum of n and three

n increased by three

three more than n

$$n - 3$$

three less than n

the difference between n
and three

n decreased by three

$$3 - n$$

n less than three

the difference between
three and n

three decreased by n

$$3n$$

the triple of n

the product of three and n

three times n

$n + 3$	the sum of n and three	n increased by three
three more than n	$n - 3$	three less than n
the difference between n and three	n decreased by three	$3 - n$

n less than three	the difference between three and n	three decreased by n
$3n$	the triple of n	the product of three and n
three times n		

Answer Key:

$$2n + 6$$

**Six more than
twice a number**

**Double a number
increased by six**

**The sum of six
and double a number**

$$6 - 2n$$

**Double a number less
than six**

**The difference between
six and two times a
number**

**Six decreased by
two times a number**

$$2n - 6$$

Twice a number less six

**The difference between
double a number and six**

**Six less than two times a
number**

$$2(n + 6)$$

**Twice the sum of a
number
and six**

**The sum of a number and
six
multiplied by two**

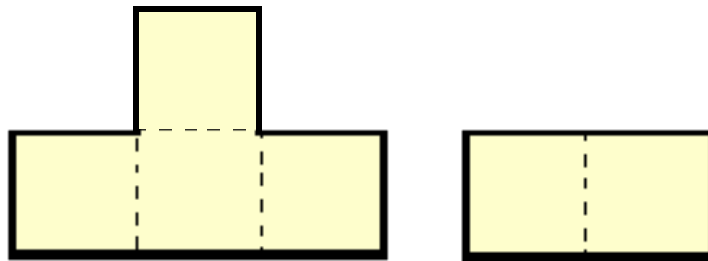
**Two times the sum of six
and**

$2n + 6$	Six more than twice a number	Double a number increased by six
The sum of six and double a number	$2n - 6$	Twice a number less six
Six less than two times a number	The difference between double a number and six	

$6 - 2n$	Double a number less than six	The difference between six and two times a number
Six decreased by two times a number	$2(n + 6)$	Twice the sum of a number and six
The sum of a number and six multiplied by two	Two times the sum of six and a number	

Cut Nets

The net of a cube has been cut into two. It could be put together in several ways so that it could be folded into a cube.

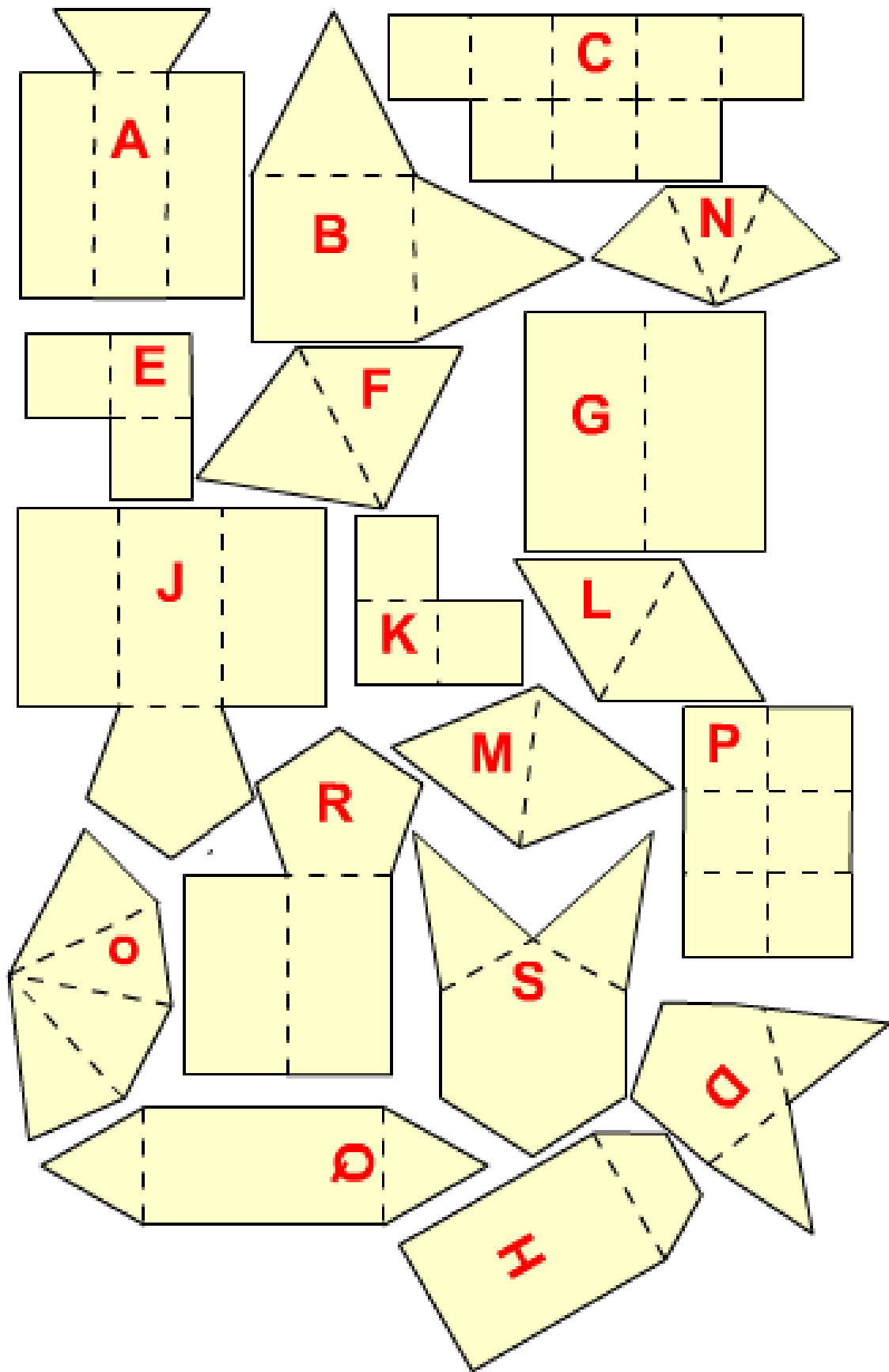


Here are the nets of 9 solid shapes. Each one of these has been cut into 2 pieces, like the net of the cube.

Match the two pieces of the 9 solid shapes. Write the letter pairs.

Cut the shapes out and put them together to see if you were correct.

Name as many of the shapes as you can.



Teacher Notes:

- Copy the shapes onto tagboard.
- Have students draw the completed nets onto grid paper after they have put them together so they can cut them out of the paper and then assemble them.

➤ Solutions

A-H trapezoidal prism

B-F square based pyramid

D-N pentagonal pyramid

J-R pentagonal prism

G-Q triangular prism

S-O hexagonal pyramid

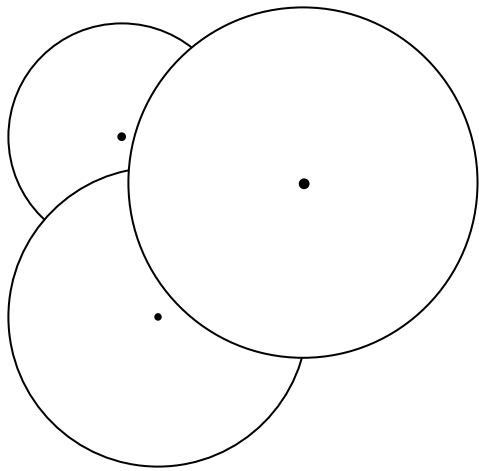
K-E cube

L-M tetrahedron

P-C rectangular prism

Circle Book

Follow the directions on your “Circle Book Directions” paper to make a circle book. After you complete all of the pages, cut out a cover (front and back) for your book using construction paper. You may want to make the circle for your cover a little bigger than the pages for the inside. Staple your book together.



Circles Book Directions

Name: _____

PAGE 1

Draw a circle that has an 8 inches diameter. Draw a 7 inch diameter circle inside of the 8 inch circle using the same center point. You will cut out the larger circle to make your book and use the smaller circle to label.

Explain how you determined where to put the center point for your 8 in. circle and how you drew your circle.

What is the measurement of the distance from the center point to the outside edge of the circle? _____

When you draw the circle, what part of the circle does the pencil create? _____

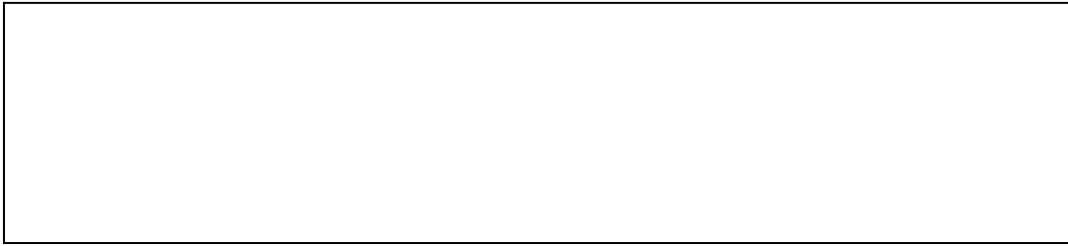
After you draw the circle, mark and label a point on the outside edge of the circle with the letter *a* and at the center of the circle with the letter *b*.

Use a ruler to connect points *a* and *b* with a line segment.

What is this line segment called? _____

Title this circle with the name of the line and define it inside the circle.

Does it matter where you mark point *a* on the circle? Will the measurement change? Explain.



PAGE 2

On a second page draw two concentric (same center point) circles congruent to the first circles.

Label this circle with points a and b . Place a ruler on the circle connecting these two points and the point on the circumference of the circle opposite point a . Draw a line segment through these points and label the third point c .

What is this line segment called? _____

Draw and label a point d on the circumference of the circle. Place a ruler on this point and at another point e on the circumference without passing through the center point.

What is this line segment called? _____

Title this circle with the names of these two line segments and write the definition for each on the circle.

PAGE 3

On the 3rd page draw the 8 inch and 7 inch, concentric circles. Draw 3 circles of different sizes inside the 7 inch circle but not concentric. Draw and measure the diameter of each circle. Label each diameter and radius with its measurement. Fill in the table with your measurements.

On this page write a number sentence that compares the radius and diameter of a circle.

Put a string around the circumference of each circle and measure the string. Fill in the table with the measurement for each circle.

PAGE 4

Make a 4th page with the two concentric circles. Cut out the table and paste it to this page.

Circle	Radius	Diameter	Circumference
1			
2			
3			
4		7 inches	Estimate

Describe the relationship between the diameter and circumference of each circle.

Use this information to estimate the circumference of your 7 inch diameter circle. Cut a piece of string or yarn the length of your estimate and complete the table. Glue this string to the circumference of the 7 inch circle on this page.

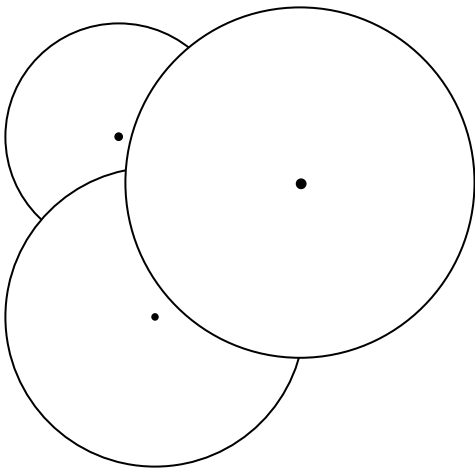
Title this page pi, then find and write the definition of pi.

PAGE 5

On the 5th page draw the 8 inch and 7 inch, concentric circles. On the 7 inch circle, draw two diameters that are not perpendicular. Use a protractor to measure the 4 angles you created.

What are the angle measurements? _____, _____, _____, _____

Add up the 4 angle measurements and write the total. _____



Circles Book Directions

Name: Answer Key

PAGE 1

Draw a circle that has an 8 inches diameter. Draw a 7 inch diameter circle inside of the 8 inch circle using the same center point. You will cut out the larger circle to make your book and use the smaller circle to label.

Explain how you determined where to put the center point for your 8 in. circle and how you drew your circle.

Answers will vary, but on an “ $8\frac{1}{2} \times 11$ ” sheet of paper it must be centered on the paper left to right.

What is the measurement of the distance from the center point to the outside edge of the circle? 4”

When you draw the circle, what part of the circle does the pencil create?

The circumference

After you draw the circle, mark and label a point on the outside edge of the circle with the letter *a* and at the center of the circle with the letter *b*.

Use a ruler to connect points *a* and *b* with a line segment.

What is this line segment called? **A radius**

Title this circle with the name of the line and define it inside the circle.

Does it matter where you mark point *a* on the circle? Will the measurement change? Explain.

It does not matter where you place Point A on the circle. Every point on the circle is 4 inches from the center of the circle.

PAGE 2

On a second page draw two concentric (same center point) circles congruent to the first circles.

Label this circle with points a and b . Place a ruler on the circle connecting these two points and the point on the circumference of the circle opposite point a . Draw a line segment through these points and label the third point c .

What is this line segment called? \overline{AC} is a diameter

Draw and label a point d on the circumference of the circle. Place a ruler on this point and at another point e on the circumference without passing through the center point.

What is this line segment called? \overline{DE} is a chord

Title this circle with the names of these two line segments and write the definition for each on the circle.

A chord is a line segment with both endpoints on the circle. A diameter is the largest chord. It has both endpoints on the circle and passes through the center of the circle.

PAGE 3

On the 3rd page draw the 8 inch and 7 inch, concentric circles. Draw 3 circles of different sizes inside the 7 inch circle but not concentric. Draw and measure the diameter of each circle. Label each diameter and radius with its measurement. Fill in the table with your measurements.

On this page write a number sentence that compares the radius and diameter of a circle.

$$d = 2r$$

Put a string around the circumference of each circle and measure the string. Fill in the table with the measurement for each circle.

PAGE 4

Make a 4th page with the two concentric circles. Cut out the table and paste it to this page. **Answers will vary.**

Circle	Radius	Diameter	Circumference
1			
2			
3			
4		7 inches	Estimate

Describe the relationship between the diameter and circumference of each circle.
The circumference is a little more than 3 times as large as the diameter.

Use this information to estimate the circumference of your 7 inch diameter circle. Cut a piece of string or yarn the length of your estimate and complete the table. Glue this string to the circumference of the 7 inch circle on this page.

Title this page pi, then find and write the definition of pi.
 π is the relationship between the circumference and the diameter of a circle.

$$\left(\pi = \frac{C}{d}\right)$$

PAGE 5

On the 5th page draw the 8 inch and 7 inch, concentric circles. On the 7 inch circle, draw two diameters that are not perpendicular. Use a protractor to measure the 4 angles you created. **Answers will vary.**

What are the angle measurements? _____, _____, _____, _____

Add up the 4 angle measurements and write the total. 360°

Circle Book

Teacher Notes:

Students will be making a circle book. For each page of their book, they will need to make an 8 inch circle and a 7 inch circle with the same center point.

They will do all of their writing inside the 7 inch circle and they will cut along the circumference of the 8 inch circle.

After they complete all of their pages, they will make a cover for their book using construction paper.

Materials:

White computer paper—8½" by 11"

Construction paper

Compass

Ruler

String or yarn

Scissors, Glue, and Stapler

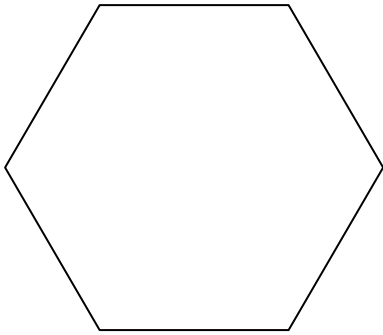
Colored pencils

Math book or math dictionary

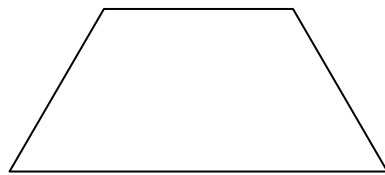
Protractor

Fractions – the Whole Story

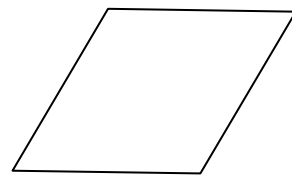
Use these pattern blocks to answer the questions.



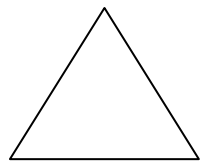
yellow
hexagon



red
trapezoid

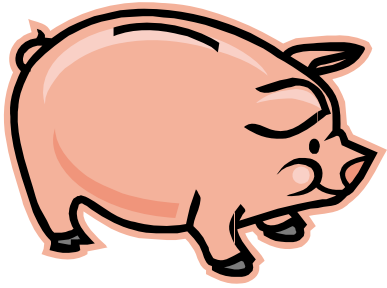


blue
rhombus



green
triangle

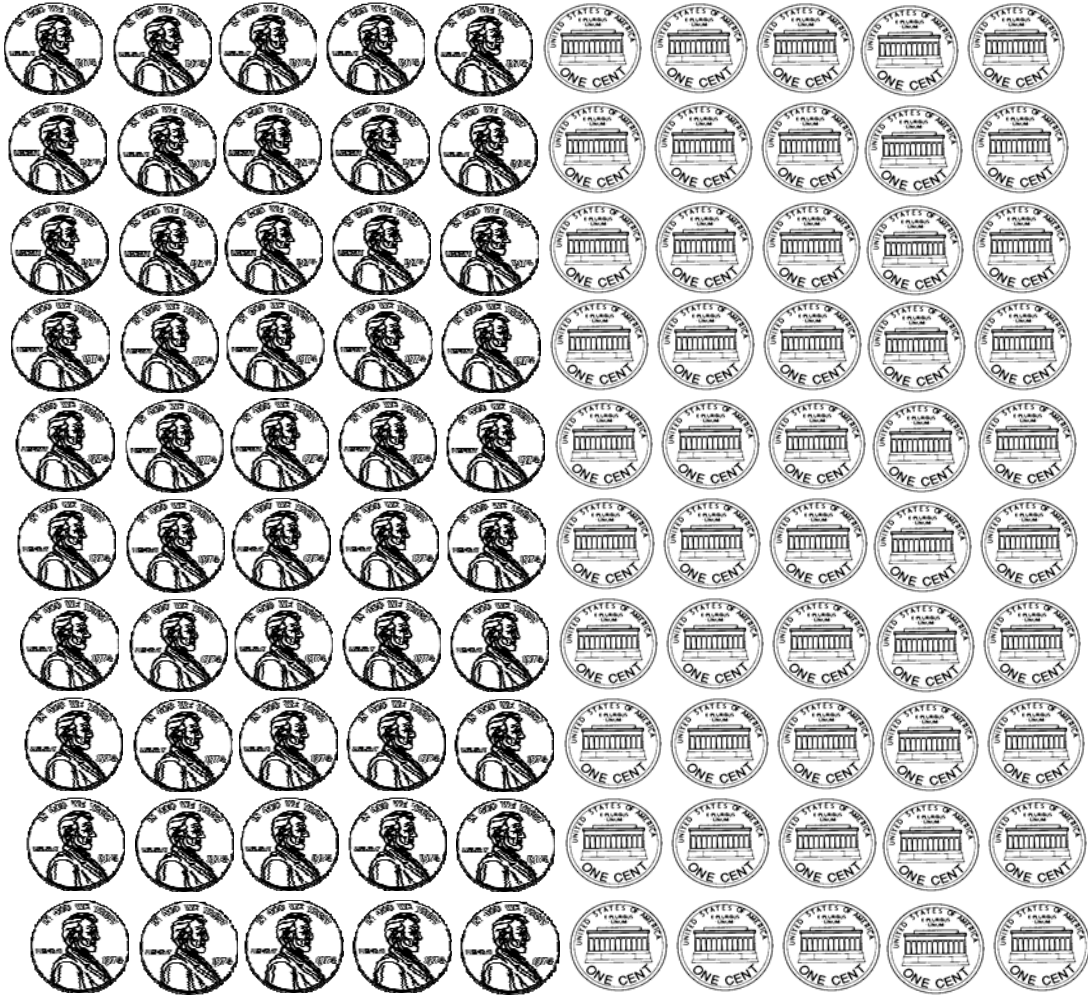
Give each answer as a fraction, a decimal, and a percent.



Money Center

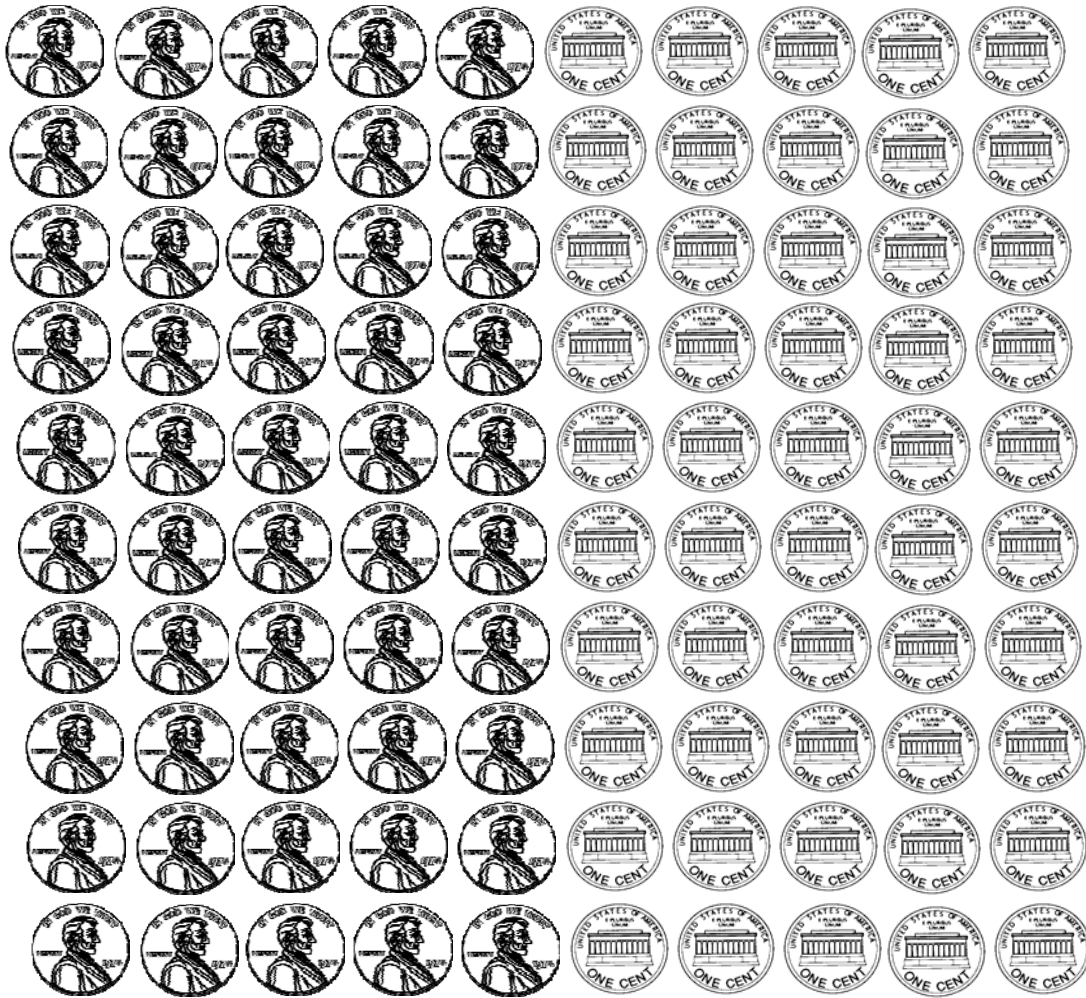
1. Answer the questions about money.
2. Use the play money at the center to help you if needed.
3. If you have time, you can create you own money problem.

There are 100 pennies on the table.



Can you see tenths in the picture of pennies? If you take $\frac{1}{10}$ of the pennies, how many do you have? Write your answer in decimal form.

There are 100 pennies on the table.



Can you see fifths in the picture of pennies? If you take $\frac{3}{5}$ of the pennies, how many pennies do you have? Write your answer in decimal form.

If two quarters represents $\frac{1}{4}$ of the money in Tameka's pocket, what amount would represent $\frac{1}{2}$ of the money?



If Nikki has $\frac{3}{4}$ of a dollar how much does she have? If all her coins are the same, draw the coins she could have.

If 15 nickels represent 75% of a dollar, what percent of a dollar would 5 nickels represent?



Use pictures, numbers, or words to explain how you got your answer.

I have two nickels in my pocket, what fraction of a dollar do I have? How do you write that in decimal form?



If two dimes represent $\frac{1}{5}$ of the cost of an ice cream cone, how much does the ice cream cone cost?



If I have 10% of the money I need for an ice cream cone, how much money do I have?

If all my coins are the same, draw the coins I could have in my pocket.

Picnic Center

Use the paper sandwiches and the paper brownies to help you solve the problems.

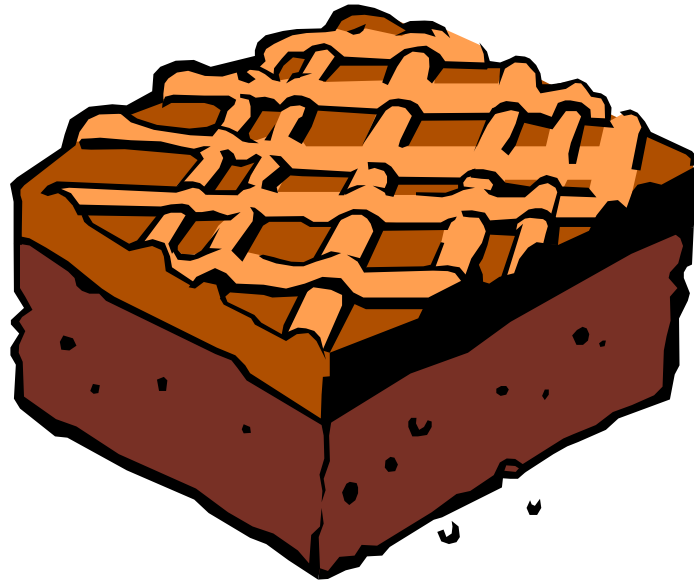
- 1) Find the answers to the problems.
- 2) On a blank sheet of paper write a new problem to leave in the center for your classmates to solve.

Problem 1



Sara made 7 sandwiches for a picnic and they all were eaten. Only four people came to the picnic and they fair shared all of the sandwiches. How much sandwich did each person eat? Use pictures, numbers, or words to explain your answer.

Problem 2



Maria and Jevonte got to the picnic after the sandwiches were gone. They brought ten brownies to share. If each of the six people ate a fair share of the brownies and there were no brownies left, how many brownies did each person eat? Use picture, numbers, or words to explain your answer.

Create a fraction problem to leave in the center for your classmates to solve.

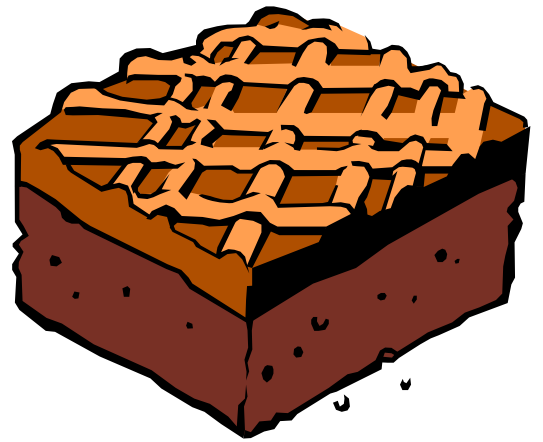


Name _____



Sara made 7 sandwiches for a picnic and they all were eaten. Only four people came to the picnic and they fair shared all of the sandwiches. How much sandwich did each person eat? Use pictures, numbers, or words to explain your answer.

Name _____



Maria and Jevonte got to the picnic after the sandwiches were gone. They brought ten brownies to share. If each of the six people ate a fair share of the brownies and there were no brownies left, how many brownies did each person eat? Use picture, numbers, or words to explain your answer.

Rename It

Describe the relationships that you see with the pieces using fractions, decimals, and percents.

The Block is
 $\frac{1}{2}$, 50%, or .5
of the Rec.



Rename It

Rec

Railroad Track

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

Long

Stick

Block

Ministick

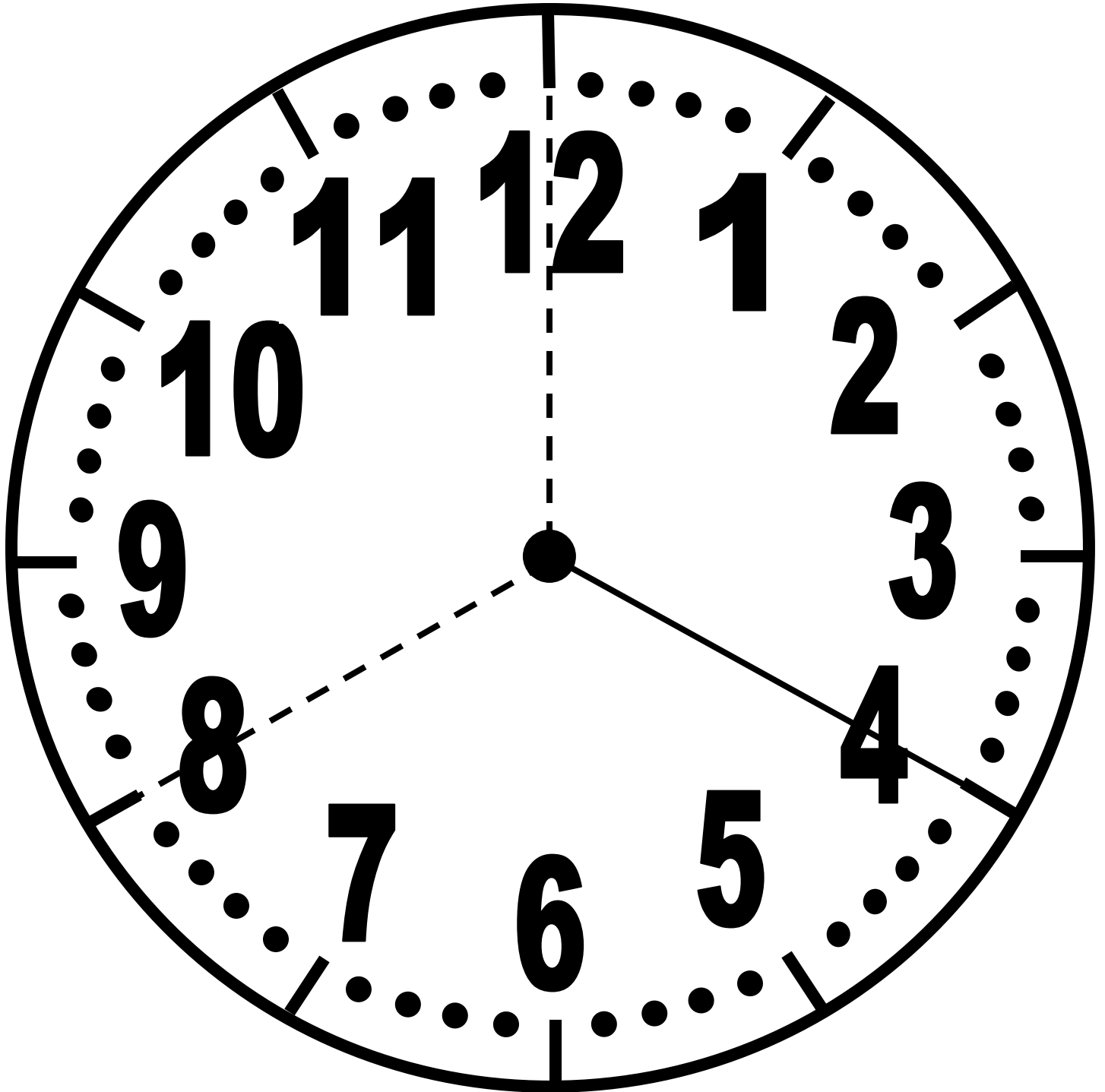
Minirec

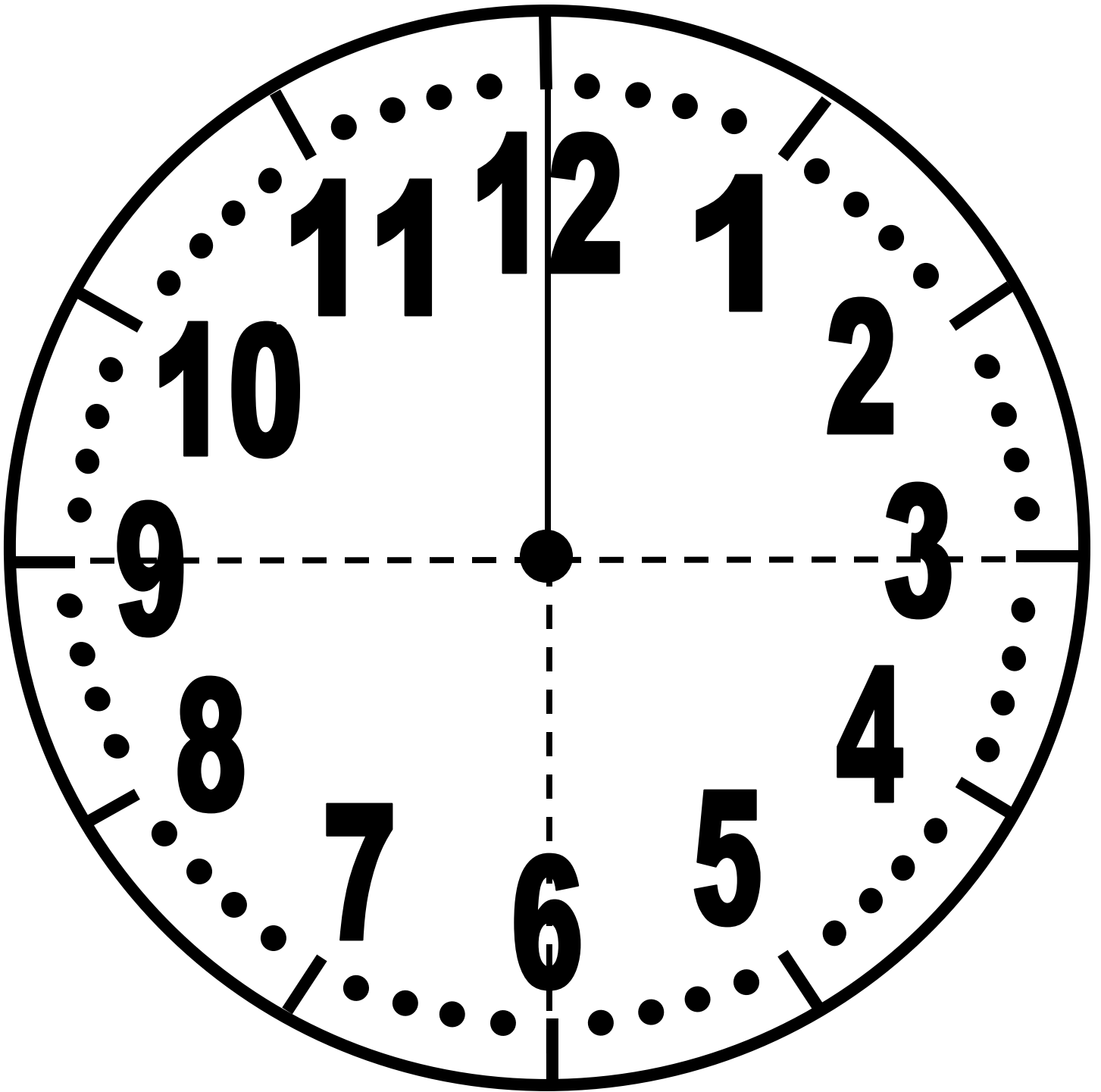
Story Time!

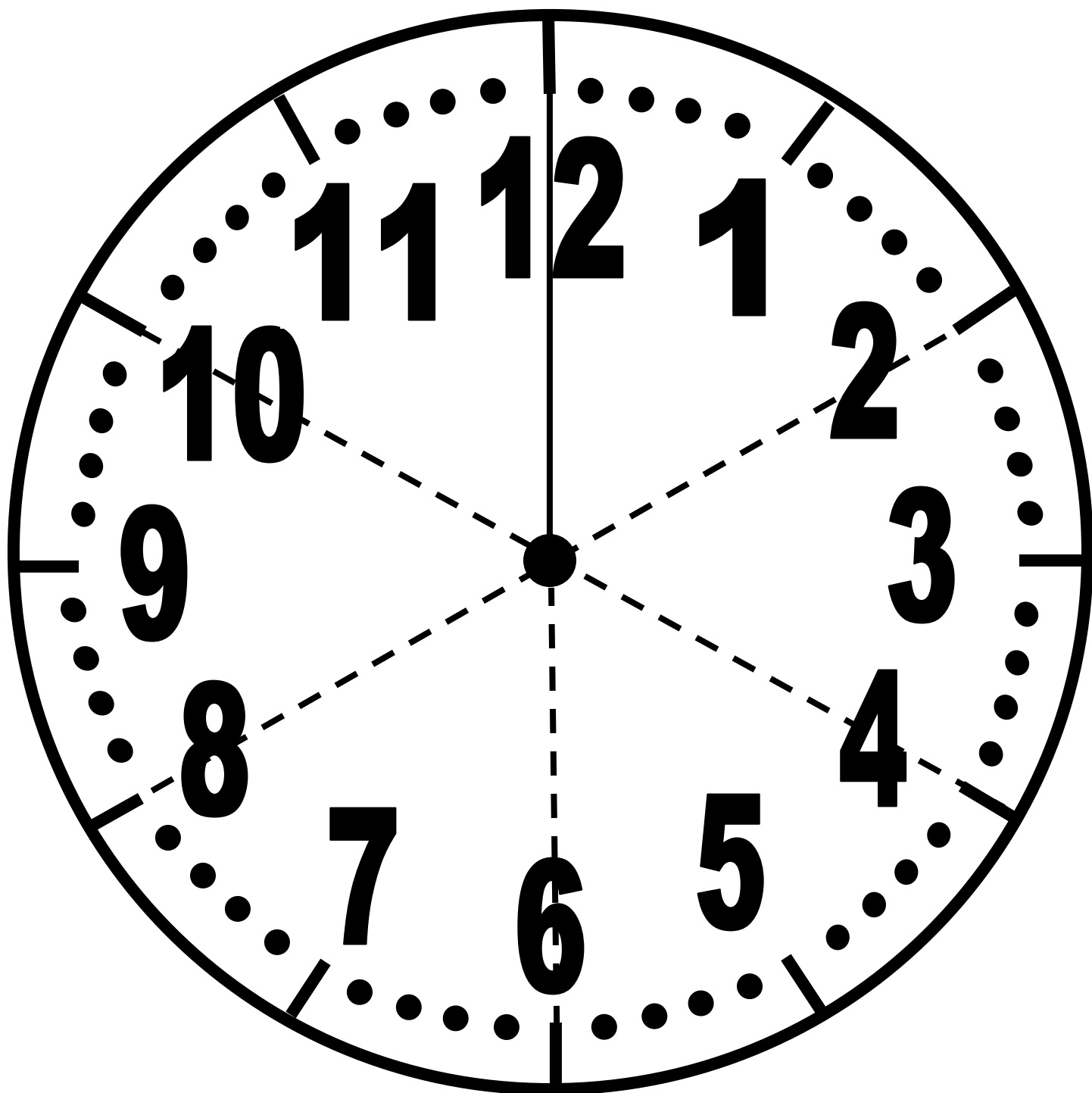
Exploring Fractional Parts of an Hour

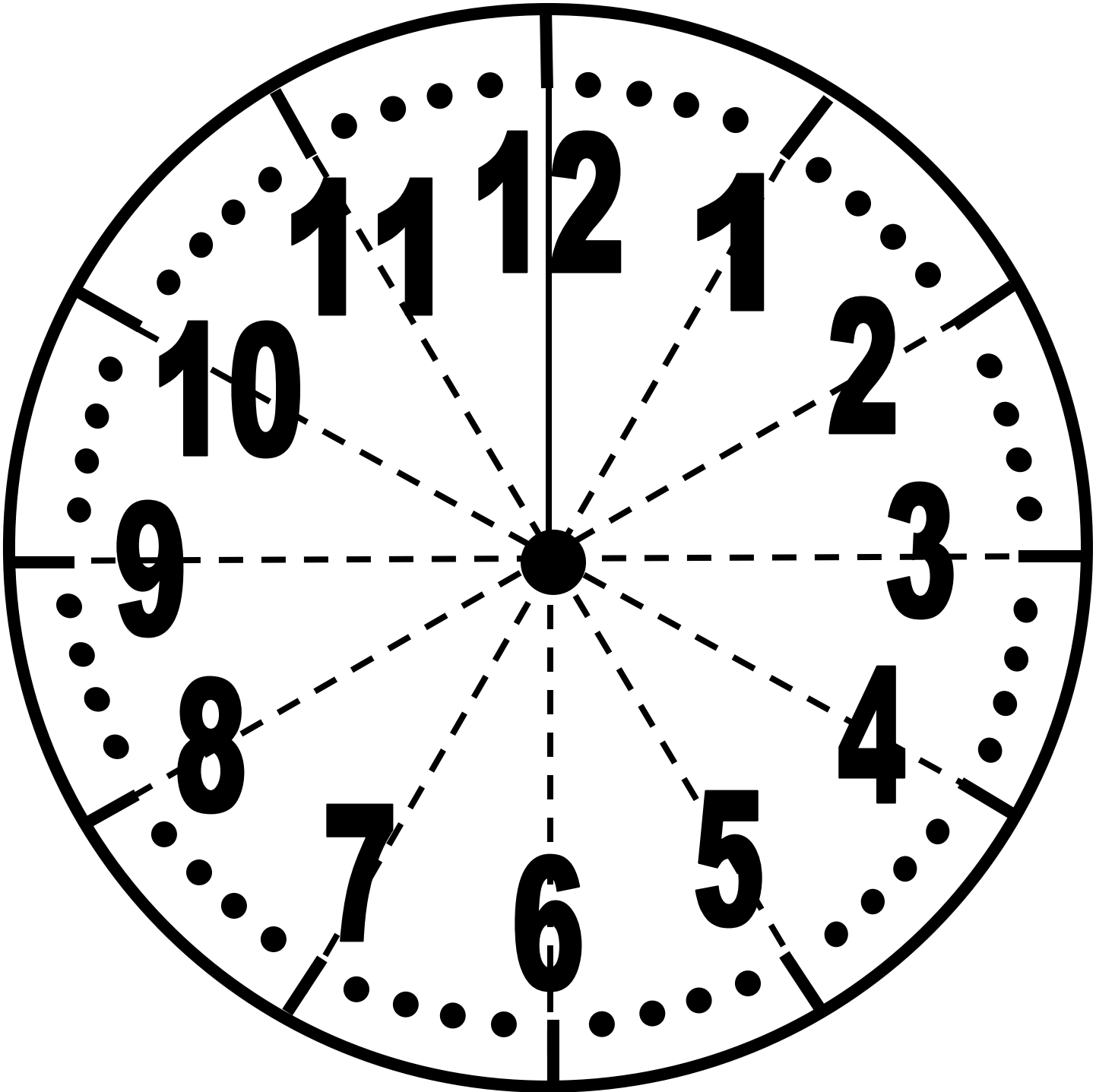
- Select a clock and cut it out. You should cut around the clock and on the dark line. The dotted lines are where you would make your folds.
- Determine the amount of time each fractional part of an hour your clock represents.
- Write a story showing elapsed time. Represent time as the fractional part of the hour that has been used. (ex. I got up and spent $\frac{1}{4}$ of an hour getting dressed.)
- As you tell your story fold the clock to demonstrate the fractional part of the hour that has been used.
- Share your story with a partner.
- Write the fractional relationships that you observe as you are folding your clock on the back of your story. (Ex. $\frac{1}{4}$ is equal to 15 minutes)







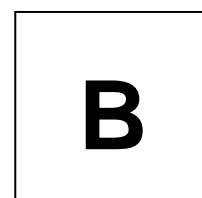
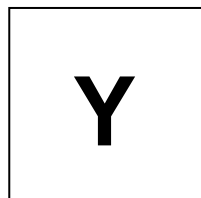
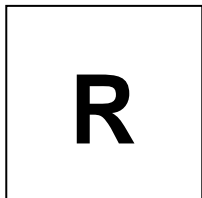




Missing Parts of a Set



Use color tiles to help you solve the problems.



- 1) Place the correct color of tile on each square.
- 2) Keep the original four tiles and add color tiles to answer each question.
- 3) There may be more than one correct answer for each question.

R

Y

G

B

1. To show .40 of the set is green, add _____
2. To show 50% of the set is blue, add _____
3. To show .5 of the set is red, add _____
4. To show $\frac{4}{7}$ of the set is yellow, add _____
5. To show $\frac{3}{8}$ of the set is green, add _____
6. To show $\frac{1}{3}$ of the set is yellow, add _____
7. To show $\frac{4}{9}$ of the set is red, add _____
8. To show 25% of the set is blue and 50% of the set is yellow,
add _____
9. To show $\frac{3}{12}$ of the set is green and .25 of the set is blue,
add _____