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Math Common Core State Standards Review

3rd Grade into 4th Grade

Grade 3 Common Core Overview

Operations and Algebraic Thinking

- Represent and solve problems involving multiplication and division.
- Understand properties of multiplication and the relationship between multiplication and division.
- Multiply and divide within 100.
- Solve problems involving the four operations, and identify and explain patterns in arithmetic.

Number and Operations in Base Ten

- Use place value understanding and properties of operations to perform multi-digit arithmetic.

Number and Operations—Fractions

- Develop understanding of fractions as numbers.

Measurement and Data

- Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
- Represent and interpret data.
- Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
- Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

Geometry

- Reason with shapes and their attributes.

How to read the grade level standards

Standards define what students should understand and be able to do.

Clusters are groups of related standards. Note that standards from different clusters may sometimes be closely related, because mathematics is a connected subject.

Domains are larger groups of related standards. Standards from different domains may sometimes be closely related.

Domain

Number and Operations in Base Ten 3.NBT

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Standard

1. Use place value understanding to round whole numbers to the nearest 10 or 100.
2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3. Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.

Cluster

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Grade 3: Operations & Algebraic Thinking

Represent and solve problems involving multiplication and division.
CCSS.Math.Content.3.OA.A.1
Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*

CCSS.Math.Content.3.OA.A.2
Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*

CCSS.Math.Content.3.OA.A.3
Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.[1]

CCSS.Math.Content.3.OA.A.4
Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = _ ÷ 3, 6 × 6 = ?*

Understand properties of multiplication and the relationship between multiplication and division.
CCSS.Math.Content.3.OA.B.5
Apply properties of operations as strategies to multiply and divide.[2] *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*

CCSS.Math.Content.3.OA.B.6
Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*

Multiply and divide within 100.
CCSS.Math.Content.3.OA.C.7
Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.
CCSS.Math.Content.3.OA.D.8
Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.[3]

CCSS.Math.Content.3.OA.D.9
Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*

Name _____ Date _____ Time _____

Solving Division Number Stories

Solve each number story. Use counters or draw an array to help you. Fill in the diagrams and write number models.

Example:

Roberto has 36 pencils. There are 3 packages of pencils. How many pencils are in each package?

Number model: $36 \div 3 = ?$

Answer: 12 pencils
(unit)

packages	pencils per package	pencils in all
3	?	36

1. The sewing club has 33 feet of cloth. They need 3 feet of cloth to make 1 book bag. How many book bags can they make?

Number model: _____

Answer: _____
(unit)

book bags	feet per book bag	feet in all

2a. A class of 30 students wants to play basketball. How many teams can be made with exactly 5 students on each team?

Number model: _____

Answer: _____
(unit)

teams	students per team	students in all

2b. For another game, the same class of 30 students wants to have exactly 7 students on each team. How many teams can they make?

Number model: _____

Answer: _____
(unit)

teams	students per team	students in all

How many students will not be on a team? _____

Why does a diagram not make sense for this problem?

_____

_____

_____

Name Date Time

Using Counters to Model Equal Sharing

Use counters to find the answers. Fill in the blanks.

16¢ shared equally

Example: by 2 people:

8 ¢ per person

0 ¢ remaining

1. by 4 people:

_____¢ per person

_____¢ remaining

2. by 5 people:

_____¢ per person

_____¢ remaining

25¢ shared equally

3. by 5 people:

_____¢ per person

_____¢ remaining

4. by 3 people:

_____¢ per person

_____¢ remaining

5. by 10 people:

_____¢ per person

_____¢ remaining

---

30 stamps shared equally

6. by 9 people:

_____ stamps per person

_____ stamps remaining

7. by 6 people:

_____ stamps per person

_____ stamps remaining

8. by 7 people:

_____ stamps per person

_____ stamps remaining

---

9. 21 days
7 days per week

_____ weeks

_____ days remaining

10. a. 28 quarts
4 quarts per gallon

_____ gallons

_____ quarts remaining

10. b. How would you write Part **a** as a number model?

_____

Name: _____ Date: _____ Time: _____

Finding Solutions of Open Sentences Containing Variables

1. Add or subtract.

a. $\begin{array}{r} 19 \\ -\ 12 \\ \hline \end{array}$ **b.** $\begin{array}{r} 15 \\ +\ 8 \\ \hline \end{array}$

c. $25 - 6 =$ _____

d. $32 + 12 =$ _____

2. Multiply.

a. $\begin{array}{r} 8 \\ \times\ 6 \\ \hline \end{array}$ **b.** $\begin{array}{r} 4 \\ \times\ 7 \\ \hline \end{array}$

c. $5 \times 9 =$ _____

d. $9 \times 8 =$ _____

3. Solve the open sentences. Check each answer by replacing the variable with your solution.

a. $12 + n = 23$

b. $p + 7 = 30$

4. Solve the open sentences. Check each answer by replacing the variable with your solution.

a. $v - 20 = 15$

b. $26 = 34 - w$

5. Solve the open sentences. Check each answer by replacing the variable with your solution.

a. $g = 5 \times 8$

b. $4 \times z = 24$

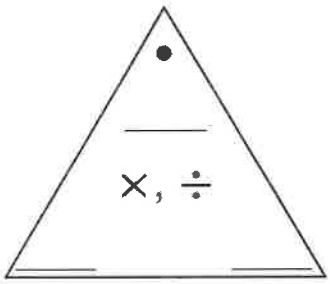
6. Make up and solve your own Review Box.

Name _____ Date _____ Time _____

Multiplication and Division Fact Triangles

Fill in the Fact Triangle for each fact. Then, complete each fact family.

1. $4 * 6 = 24$



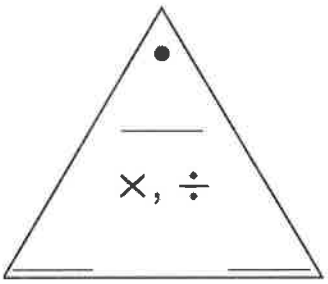
$4 \times 6 = 24$

_____

_____

_____

2. $9 * 3 =$ _____



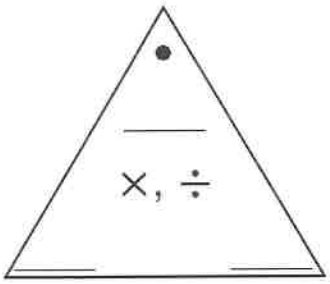
_____

_____

_____

_____

3. $6 * 8 =$ _____



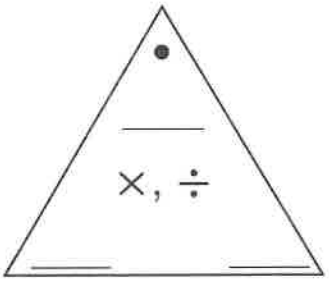
_____

_____

_____

_____

4. $10 * 7 =$ _____



_____

_____

_____

_____

Name: _____ Date: _____ Time: _____

Solve Extended Multiplication and Division Facts

1. Multiply.

6 × 1 = _____

0 × 7 = _____

4 × 5 = _____

10 × 2 = _____

2. Divide.

7 ÷ 1 = _____

15 / 3 = _____

54 ÷ 9 = _____

16 / 2 = _____

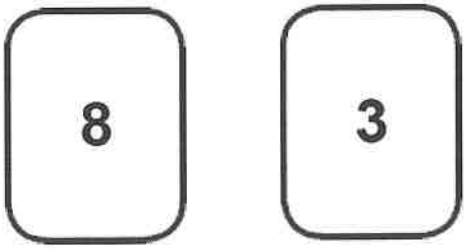
3. Write the number of 7s in each number.

How many 7s in 70? _____ How many 7s in 49? _____

How many 7s in 700? _____ How many 7s in 490? _____

How many 7s in 7,000? _____ How many 7s in 4,900? _____

4. Use base-10 blocks to model and write an addition fact for the numbers on the cards. Then model and write an addition model for the multiples of 10.



Numbers on Cards	Ten Times the First Number	One Hundred Times the First Number
_____ _____	_____0 _____	_____00 _____
_____ × _____ = _____	_____ × _____ = _____	_____ × _____ = _____

Name Date Time

Using the Partial-Products Algorithm

Multiply. Compare your answers with a partner. If you disagree, discuss your strategies with each other. Then try the problem again.

Example: 7 × 46

$$\begin{array}{r} 46 \\ \times\ 7 \\ \hline 7\ [40s] \rightarrow\ 280 \\ 7\ [6s] \rightarrow +\ 42 \\ \hline 280 + 42 \rightarrow\ 322 \end{array}$$

1. 54 × 2

$$\begin{array}{r} 54 \\ \times\ 2 \\ \hline \end{array}$$

2. 83 × 6

$$\begin{array}{r} 83 \\ \times\ 6 \\ \hline \end{array}$$

3. 6 × 75

$$\begin{array}{r} 75 \\ \times\ 6 \\ \hline \end{array}$$

4. 213 × 7

$$\begin{array}{r} 213 \\ \times\ 7 \\ \hline \end{array}$$

5. 405 × 5

$$\begin{array}{r} 405 \\ \times\ 5 \\ \hline \end{array}$$

Name: _____ Date: _____ Time: _____

Finding the Best Order to Multiply 3 Numbers

1. Multiply.

a. 57 × 4

b. 285 × 6

c. 39 × 8

d. 532 × 4

2. Write and solve four multiplication sentences for the following numbers: 3, 4, and 5.

_____

_____

_____

_____

3. Write and solve four multiplication sentences for the following numbers: 5, 7, and 4.

_____ _____

_____ _____

4. Write and solve four multiplication sentences for the following numbers: 6, 10, and 8

_____

_____

_____

_____

5. Circle the multiplication sentence that was easiest for you to solve for Problem 3.

Explain why the multiplication sentence was easiest for you.

_____

_____

_____

Name: _____ Date: _____ Time: _____

Find Products and Quotients with Multiples of 10, 100, and 1,000

1. Multiply.

3 * 9 = _____

8 * 4 = _____

2. Divide.

30 / 6 = _____

14 / 7 = _____

3. Solve each problem.

2 [40s] = _____ 2 * 40 = _____

7 [60s] = _____ 7 * 60 = _____

50 [80s] = _____ 50 * 80 = _____

4. Solve each problem.

How many 4s are in 240? _____

_____ * 4 = 240

240 / 4 = _____

5. Solve each problem.

How many 7s are in 350? _____

350 / 7 = _____

How many 50s are in 2,000? _____

2,000 / 50 = _____

How many 600s are in 4,800? _____

4,800 / 600 = _____

6. Explain how you found the answers in Problem 5.

Name _____ Date _____ Time _____

Estimating Products and Discussing Estimation Strategies

Answer the question. You do not need to find the exact answer.

Example: Suppose there are 6 bighorn sheep. Each one weighs about 237 pounds. Altogether, do they weigh more than 2,000 pounds?

a. THINK: 237 is close to 250

b. ESTIMATION:

6 × _____ = _____

c. Answer: 6 bighorn sheep weigh _____ than 2,000 pounds

d. Explain how you made the estimate:

_____

_____

_____

_____

1. Is the total weight of twelve 18-pound raccoons more than 100 pounds?

a. THINK: *How much would ten 18-pound raccoons weigh?*

b. ESTIMATION:

_____ × _____ = _____

c. Answer: twelve 18-pound raccoons weigh _____ than 100 pounds

d. Explain how you made the estimate:

_____

_____

_____

_____

2. A sea otter weighs about 65 pounds. There are 9 sea otters at the aquarium. They all look about the same size and weight. Altogether, do they weigh more than 500 pounds?

a. THINK: 65 is close to _____ and 9 is close to _____

b. ESTIMATION: _____ × _____ = _____

c. Answer: 9 sea otters weigh _____ than 500 pounds

d. Explain how you made the estimate:

_____

_____

_____

_____

3. Is the total weight of eleven 360-pound bottlenose dolphins more than 5,000 pounds?

a. THINK: *How much would ten 360-pound dolphins weigh?*

b. ESTIMATION:

_____ × _____ = _____

c. Answer: eleven 360-pound dolphins weigh _____ than 5,000 pounds

d. Explain how you made the estimate:

_____

_____

_____

_____

Grade 3: Number & Operations in Base Ten

Use place value understanding and properties of operations to perform multi-digit arithmetic.[1]
CCSS.Math.Content.3.NBT.A.1
Use place value understanding to round whole numbers to the nearest 10 or 100.

CCSS.Math.Content.3.NBT.A.2
Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

CCSS.Math.Content.3.NBT.A.3
Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9×80, 5×60) using strategies based on place value and properties of operations.

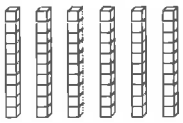
Name _____ Date _____ Time _____

Rounding Whole Numbers with Base-10 Blocks

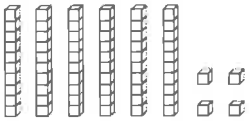
You can use base-10 blocks to help you round numbers.

Example: Round 64 to the nearest ten.

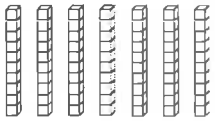
- Build a model for 64 with base-10 blocks.
- *Think:* What **multiples of 10** are nearest to 64?
  If I take the ones (cubes) away, I would have **60.**
  If I add more ones to make the next ten, I would have **70.**
- Build models for 60 and 70.



60



64



70

Think: Is 64 closer to 60 or 70? 64 is closer to 60. So, 64 rounded to the nearest ten is 60.

Build models to help you choose the closer number.

1. Round 37 to the nearest ten.

List the three numbers you will build models for: _____, _____, _____

37 is closer to _____. So, 37 rounded to the nearest ten is _____.

2. Round 83 to the nearest ten.

List the three numbers you will build models for: _____, _____, _____

83 is closer to _____. So, 83 rounded to the nearest ten is _____.

3. Round 129 to the nearest ten.

List the three numbers you will build models for: _____, _____, _____

129 is closer to _____. So, 129 rounded to the nearest ten is _____.

4. Round 129 to the nearest *hundred.*

List the three numbers you will build models for: _____, _____, _____

129 is closer to _____. So, 129 rounded to the nearest hundred is _____.

Name _____ Date _____ Time _____

Discuss Strategies to Estimate Sums of 2- and 3-Digit Numbers

Make a ballpark estimate. Write a number model to show your estimate. Then use any method to find the actual sum.

Example:

Ballpark estimate:

400 + 500 = 900

439
+ 518
957

Is your answer reasonable?

_____

1. Ballpark estimate:

_____

42
+ 26

Is your answer reasonable?

_____

2. Ballpark estimate:

_____

80
+ 27

Is your answer reasonable?

_____

3. Ballpark estimate:

_____

397
+ 550

Is your answer reasonable?

_____

4. Ballpark estimate:

_____

173
+ 109

Is your answer reasonable?

_____

5. Ballpark estimate:

_____

348
+ 141

Is your answer reasonable?

_____

Name: _____ Date: _____ Time: _____

The Meaning of "10 Times"

1. A phone is about 6 inches long. A table is 10 times as long. How long is the table? _____	**2.** A person can walk about 3 miles per hour. A person on a bike can travel 10 times that speed. How fast can the person on the bike travel? _____
3. A town has an area of about 20 square miles. A city has an area 10 times that. What is the area of the city? _____	**4.** There are 116 cubic miles of water in Lake Erie. Lake Michigan has about 10 times that volume of water. How much water does Lake Michigan have? _____
5. A house is about 30 feet tall. A tall building is 10 times that tall. A small mountain is about 10 times as tall as the building. How tall is the mountain? _____	**6.** Explain how you found the answer to Problem 5.

Name _____ Date _____ Time _____

Find Products and Quotients with Multiples of 10, 100, and 1,000

Solve each problem.

Example 1: 70 [50s] = 3,500

1. 4 * 70 = _____

2. 5 [80s] = _____

3. 8 * 20 = _____

4. 60 [60s] = _____

5. 60 * 30 = _____

6. 80 [40s] = _____

7. 20 * 90 = _____

8. 900 [30s] = _____

9. 200 * 80 = _____

10. 400 [400s] = _____

11. 300 * 500 = _____

Example 2: How many 60s are in 3,000? 50

12. How many 700s are in 2,100? _____

13. a. How many 4s are in 280? _____

b. _____ * 4 = 280

c. 280 / 4 = _____

14. a. 50 * 300 = _____

b. 15,000 / 50 = _____

15. How many 30s in 900? _____

16. 800 / 40 = _____

17. How many 90s in 3,600? _____

18. 5,600 / 80 = _____

19. How many 500s in 350,000? _____

20. 480,000 / 800 = _____

Grade 3: Number & Operations- Fractions

Develop understanding of fractions as numbers.

CCSS.Math.Content.3.NF.A.1

Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.

CCSS.Math.Content.3.NF.A.2

Understand a fraction as a number on the number line; represent fractions on a number line diagram.

CCSS.Math.Content.3.NF.A.2.a

Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line.

CCSS.Math.Content.3.NF.A.2.b

Represent a fraction a/b on a number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.

CCSS.Math.Content.3.NF.A.3

Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

CCSS.Math.Content.3.NF.A.3.a

Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.

CCSS.Math.Content.3.NF.A.3.b

Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.

CCSS.Math.Content.3.NF.A.3.c

Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.*

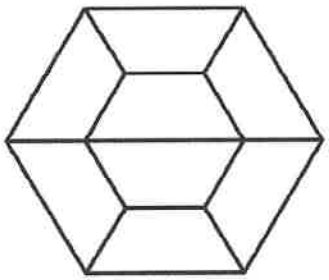
CCSS.Math.Content.3.NF.A.3.d

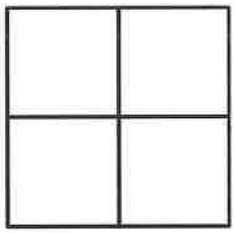
Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

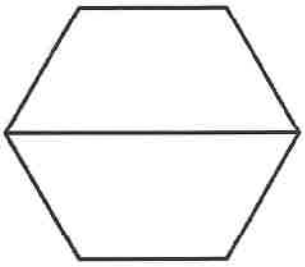
Name: _____ Date: _____ Time: _____

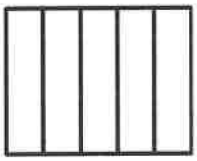
Identifying the Whole

The shapes at the bottom of the page are fractional parts of a shape at the top of the page. Match the fractional shape to its whole.

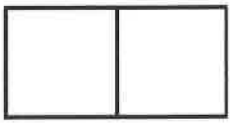
A. 

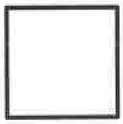
B. 

C. 

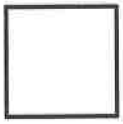
D. 

E. 

F. 

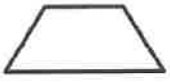
1. _____  $= \frac{1}{2}$

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

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

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

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

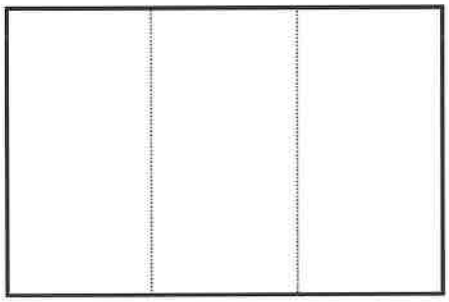
_____  $= \frac{1}{8}$

Name: _____ Date: _____ Time: _____

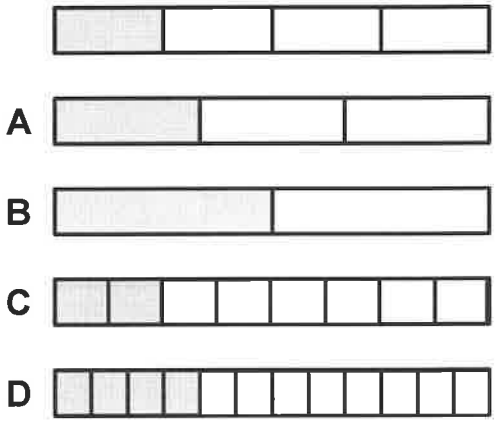
Using Fraction Cards to Find Equivalent Fractions

1. Label each equal part.

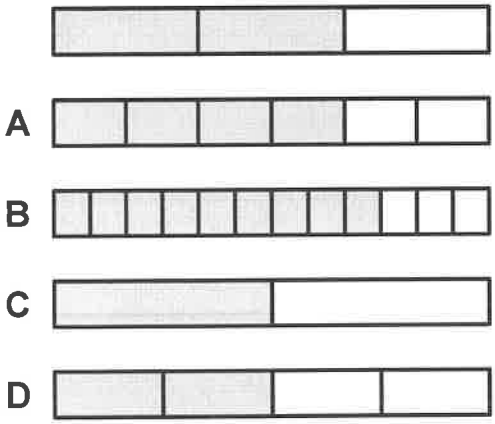
Shade $\frac{1}{3}$ of the rectangle.



2. Circle the letter of the fraction strip that shows an equivalent fraction.



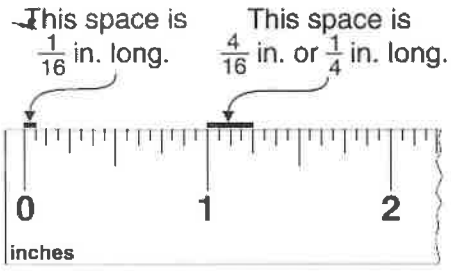
3. Circle the letter of the fraction strip that shows an equivalent fraction.



4. Describe how you found the answer in Problem 3.

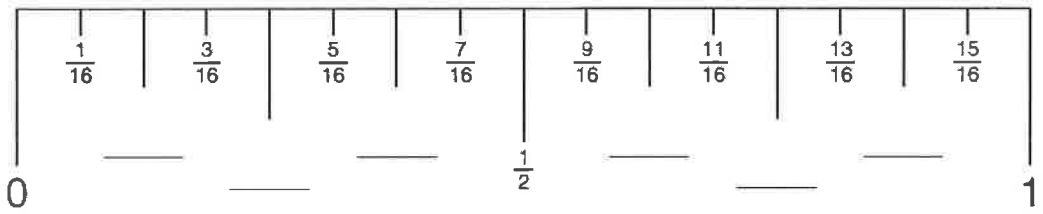
Name _____ Date _____ Time _____

Reading a Ruler



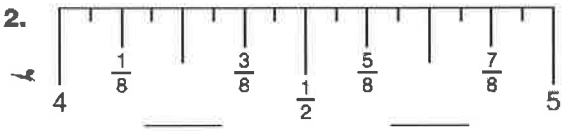
Fill in the blank spaces on each ruler. Identify these marks on your ruler.

1.



Scale: 6 inches represents 1 inch

2.



Scale: 3 inches represents 1 inch

Use your ruler to measure the line segment to the nearest $\frac{1}{8}$ inch.

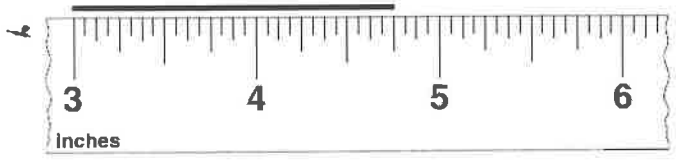
3. _____

Use your ruler to measure the line segment to the nearest $\frac{1}{16}$ inch.

4. _____

Use the ruler pictured to determine the length of the line segment to the nearest $\frac{1}{4}$ inch.

5. _____



Grade 3: Measurement & Data

Solve problems involving measurement and estimation.
CCSS.Math.Content.3.MD.A.1
Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

CCSS.Math.Content.3.MD.A.2
Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).[1] Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.[2]

Represent and interpret data.
CCSS.Math.Content.3.MD.B.3
Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*

CCSS.Math.Content.3.MD.B.4
Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
CCSS.Math.Content.3.MD.C.5
Recognize area as an attribute of plane figures and understand concepts of area measurement.

CCSS.Math.Content.3.MD.C.5.a
A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.

CCSS.Math.Content.3.MD.C.5.b
A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.

CCSS.Math.Content.3.MD.C.6
Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).

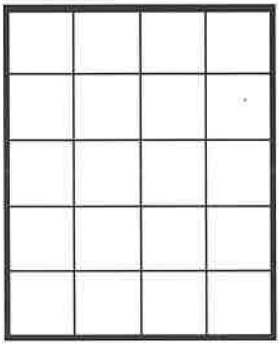
CCSS.Math.Content.3.MD.C.7
Relate area to the operations of multiplication and addition.

CCSS.Math.Content.3.MD.C.7.a
Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.

Name: _____ Date: _____ Time: _____

Finding Areas of Rectangles by Counting Squares

1.



This is a _____-by- _____ rectangle.

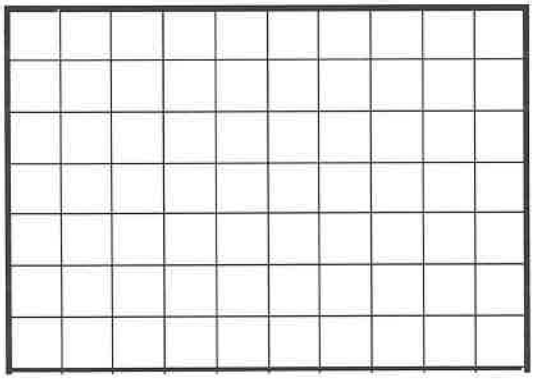
Area = _____ square units

2.

This is a _____-by- _____ rectangle.

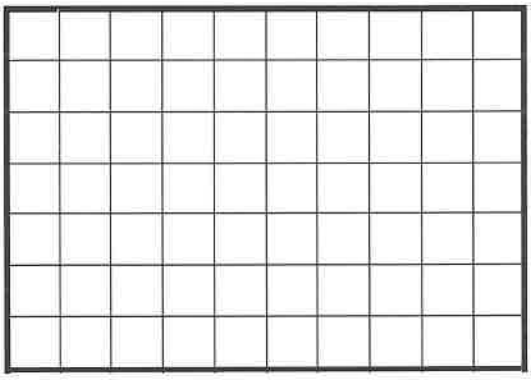
Area = _____ square units

3. Draw a 3-by-6 rectangle on the grid.



Area = _____ square units

4. Draw a 2-by-5 rectangle on the grid.

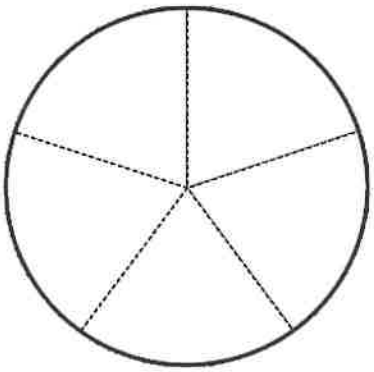


Area = _____ square units

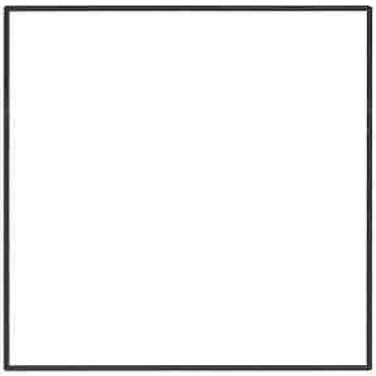
Name: _____ Date: _____ Time: _____

Writing Fractions on a Number Line

1. Shade $\frac{2}{5}$ of the circle.



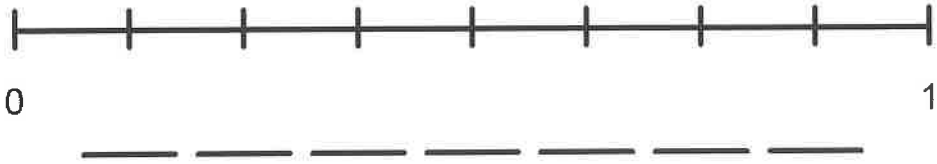
2. Divide the square into fourths.



3. Label the tick marks.

4. Label the tick marks.

5. Label the tick marks.



Name Date Time

Using Multiplication and Division to Find Equivalent Fractions

Fill in the blanks to show how the multiplication rule or the division rule is used to find equivalent fractions.

Example: $\frac{6}{8} \frac{*7}{*7} = \frac{42}{56}$ $\frac{72}{81} \frac{\div 9}{\div 9} = \frac{8}{9}$

1. $\frac{56}{63} \frac{\square}{\square} = \frac{8}{9}$

2. $\frac{3}{4} \frac{\square}{\square} = \frac{9}{12} \frac{\square}{\square} = \frac{27}{36} \frac{\square}{\square} = \frac{54}{72} \frac{\square}{\square} = \frac{6}{8} \frac{\square}{\square} = \frac{3}{4}$

Fill in the blanks to make equivalent fractions.

3. $\frac{2}{6} = \frac{\square}{18}$

4. $\frac{8}{56} = \frac{1}{\square}$

5. $\frac{\square}{12} = \frac{1}{3}$

6. $\frac{3}{\square} = \frac{9}{27}$

7. $\frac{9}{11} = \frac{\square}{22}$

8. $\frac{\square}{100} = \frac{2}{10}$

Match each fraction in the left column with an equivalent fraction in the right column. Then fill in the boxes on the left with either a multiplication or division symbol and a number showing how you changed each fraction to get the equivalent fraction.

9.

$\frac{1}{2} \frac{\square}{\square}$ $\frac{25}{30}$

$\frac{16}{24} \frac{\square}{\square}$ $\frac{1}{3}$

$\frac{5}{6} \frac{\square}{\square}$ $\frac{6}{12}$

$\frac{10}{30} \frac{\square}{\square}$ $\frac{4}{6}$

10.

$\frac{15}{20} \frac{\square}{\square}$ $\frac{28}{30}$

$\frac{6}{10} \frac{\square}{\square}$ $\frac{4}{5}$

$\frac{12}{15} \frac{\square}{\square}$ $\frac{3}{4}$

$\frac{14}{15} \frac{\square}{\square}$ $\frac{12}{20}$

Name _____ Date _____ Time _____

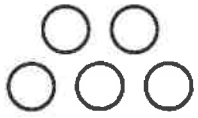
Using Counters to Find the ONE

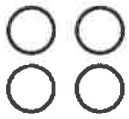
Use counters to help you solve the problems.

Examples:

If ○ ○ ○ is $\frac{1}{2}$, then what is the ONE? 6 counters

If ○ ○ ○ ○ is $\frac{2}{5}$, then what is the ONE? 10 counters

1. If  is $\frac{1}{5}$, then what is the ONE? _____ counters

2. If  is $\frac{1}{3}$, then what is the ONE? _____ counters

3. If 14 counters are $\frac{2}{5}$, then what is the ONE? _____ counters

4. If 15 counters are $\frac{3}{4}$, then what is the ONE? _____ counters

5. If $\frac{1}{4}$ of the muffins that Mrs. Jackson baked is 12, then how many muffins did she bake in all? _____ muffins

6. In Mr. Phillips' class, $\frac{2}{3}$ of the students take art lessons. That is, 16 students take art lessons. How many students are in Mr. Phillips' class? _____ students

7. Explain how you solved Problem 6.

_____

_____

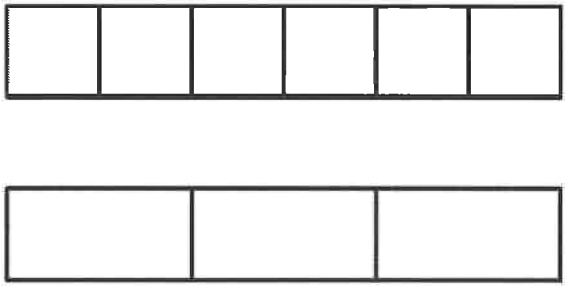
_____

_____

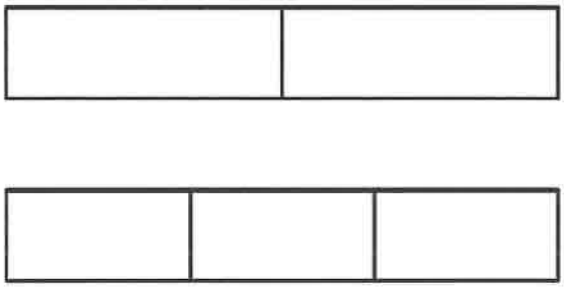
Name: _____ Date: _____ Time: _____

Comparing with Area Models

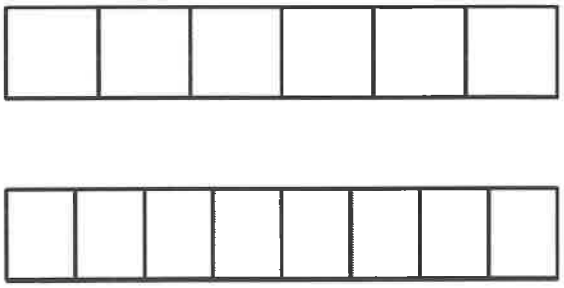
1. Which is more, $\frac{1}{6}$ or $\frac{1}{3}$? _____



2. Which is more, $\frac{1}{2}$ or $\frac{1}{3}$? _____



3. Which is more, $\frac{1}{6}$ or $\frac{1}{8}$? _____



CCSS.Math.Content.3.MD.C.7.b
Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

CCSS.Math.Content.3.MD.C.7.c
Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.

CCSS.Math.Content.3.MD.C.7.d
Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

Geometric measurement: recognize perimeter.
CCSS.Math.Content.3.MD.D.8
Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Name _____ Date _____ Time _____

Calculating Elapsed Time in Minutes

Use your clock. Write the answers.

1. It is 11:15.
Lunch is at 11:39. How many minutes until lunch?

_____ minutes

2. It is 7:05.
The bus will pick you up at 7:40. How many minutes until the bus comes?

_____ minutes

3. It is 1:15.
Your math class begins at 1:58. How many minutes until math class begins?

_____ minutes

4. Your bedtime is at 8:30.
It is 8:10. How many minutes until bedtime?

_____ minutes

5. Your trombone lesson starts at 4:30. It is 4:13. How many minutes until your lesson?

_____ minutes

6. The movie you are watching is over at 8:47. It is 8:00. How many minutes until the movie will be over?

_____ minutes

Name: _____ Date: _____ Time: _____

Matching Bar Graphs to Tally Charts

1. Jackson had 6 pennies.
He lost 3 pennies.
How many pennies does Jackson have now?

_____ pennies

2. There are 8 dogs in the park.
2 dogs go home.
How many dogs are left?

_____ dogs

3. The data in the tally chart and the bar graph do not match. Change the bar graph so that it matches the data in the tally chart.

Number of Goals	Number of Students
0	///
1	𝍸 /
2	𝍸
3	////
4	//
5	𝍸 //

4. Use the data from Problem 3 to answer the questions.

a. How many total students made at least one goal? _____

b. What was the most common number of goals made? _____

c. Did every student make a goal? _____

Name: _____ Date: _____ Time: _____

Measuring in Half Inches and Plotting on a Line Plot

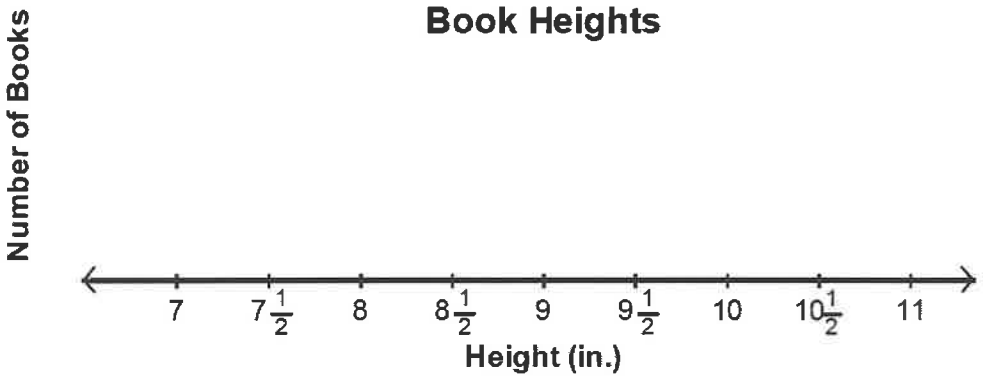
1. Measure the height of a book from your classroom to the nearest $\frac{1}{2}$ inch.

The height of my book is _____ inches.

Draw an X on the line plot below to show the height of your book.

Plot these additional book heights on the line plot with an X:

$8, 9\frac{1}{2}, 10\frac{1}{2}, 7, 9, 11, 8, 7\frac{1}{2}, 10, 9\frac{1}{2}$



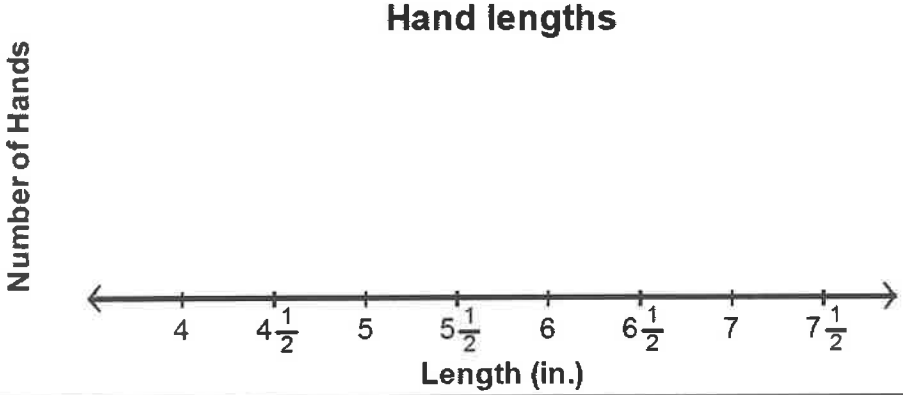
2. Measure the length of your hand to the nearest $\frac{1}{2}$ inch. To measure your hand, begin at your wrist and measure to the end of your middle finger.

The length of my hand is _____ inches.

Draw an X on the line plot below to show the length of your hand.

Plot these additional lengths on the line plot with an X:

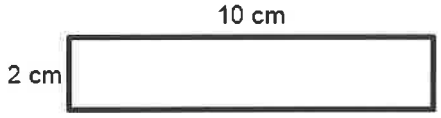
$6, 6\frac{1}{2}, 6, 5\frac{1}{2}, 4\frac{1}{2}, 5\frac{1}{2}, 6, 5\frac{1}{2}, 5, 6\frac{1}{2}$



Name: _____ Date: _____ Time: _____

Comparing Rectangles with the Same Areas and Different Perimeters

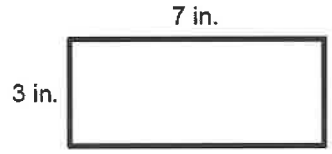
1. Draw and label another rectangle that has the same area as the one below, but has a different perimeter.



Perimeter = _____ (unit) Perimeter = _____ (unit)

Area = _____ (unit) Area = _____ (unit)

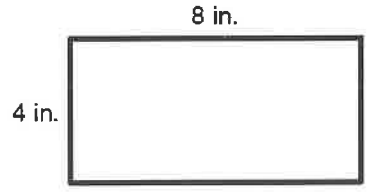
2. Draw and label another rectangle that has the same area as the one below, but has a different perimeter.



Perimeter = _____ (unit) Perimeter = _____ (unit)

Area = _____ (unit) Area = _____ (unit)

3. Draw and label another rectangle that has the same area as the one below, but has a different perimeter.



Perimeter = _____ (unit) Perimeter = _____ (unit)

Area = _____ (unit) Area = _____ (unit)

Grade 3: Geometry

Reason with shapes and their attributes.
CCSS.Math.Content.3.G.A.1
Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

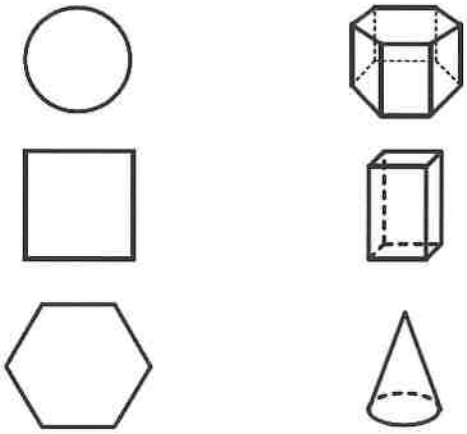
CCSS.Math.Content.3.G.A.2
Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape*.

Name: _____ Date: _____ Time: _____

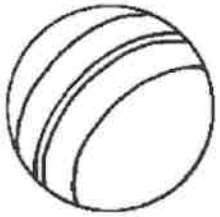
Comparing Geometric Solids

Each object in Problems 2–4 is an example of a geometric solid.

1. Draw a line to match each shape to the picture of the solid that uses it as its base.



2. Name the geometric solid.



_____ _____

3. a. Name the geometric solid.

_____ _____

b. How are these geometric solids similar?

_____

_____

_____

_____

4. a. Name the geometric solid.

_____ _____

b. How are these geometric solids similar?

_____

_____

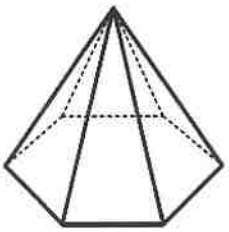
_____

_____

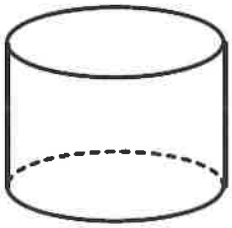
Name: _____ Date: _____ Time: _____

Comparing Types of Geometric Solids

1. Write the name for each solid.



_____



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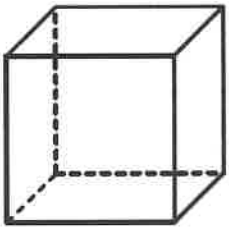
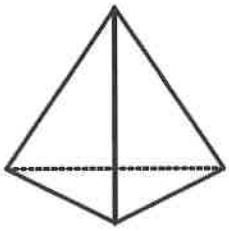
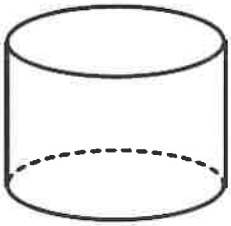


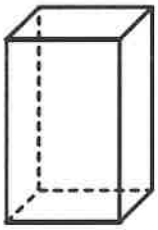
_____



_____

2. How are cylinders and prisms different?



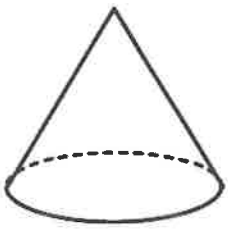


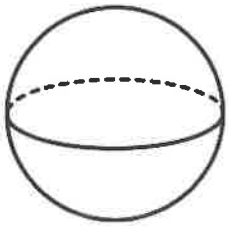
_____

_____

_____

3. How are cones and spheres alike?





_____

_____

_____

4. Make up and solve your own Review Box.

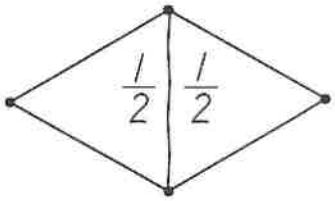
Name Date Time

Dividing and Identifying Fractional Parts of Shapes

Divide each shape into equal parts. Label each section with a unit fraction.
Write the name of the "whole" in the **"whole" box.**

Example:

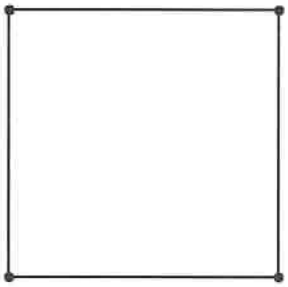
Whole
rhombus



Divide the rhombus into 2 equal parts.

---

1. **Whole**



Divide the square into 4 equal parts.

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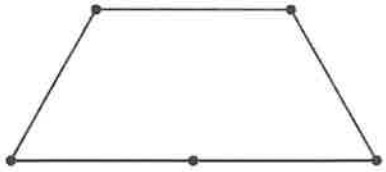
2. **Whole**



Divide the trapezoid into 3 equal parts.

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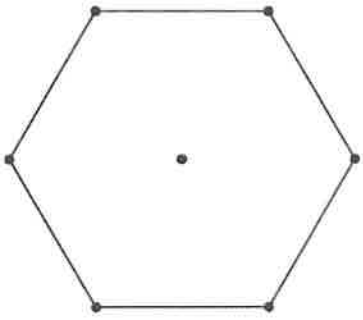
3. **Whole**



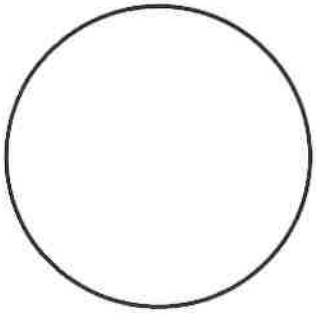
Divide the hexagon into 6 equal parts.

Name: _____ Date: _____ Time: _____

Dividing and Identifying Fractional Parts of Shapes

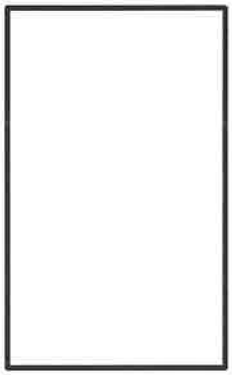
Use your straightedge to help you.

1. Divide the circle into halves.



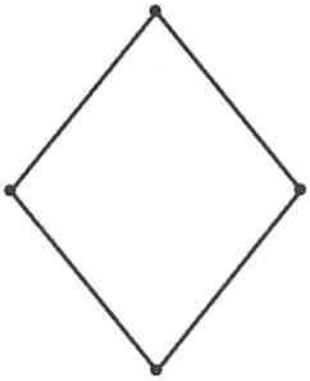
Whole

2. Divide the rectangle into thirds.



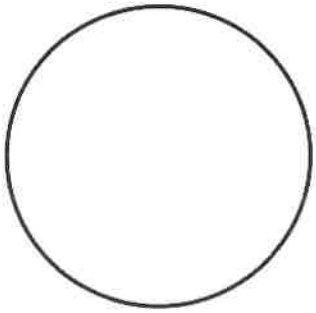
Whole

3. Divide the rhombus into fourths.
Label each part with a unit fraction.



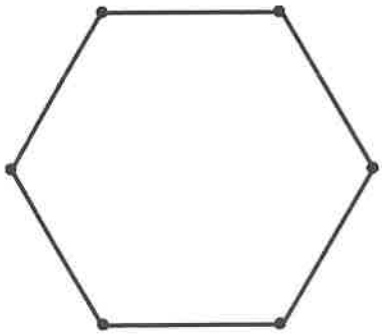
Whole

4. Divide the circle into sixths.
Label each part with a unit fraction.



Whole

5. Divide the hexagon into thirds.
Label each part with a unit fraction.



Whole

6. Is there another way to divide the hexagon in Problem 5 into thirds?