May, 2023

Dear Parents/Guardians,

The attached math enrichment packet is meant to provide your child with a review of the skills she learned in 3rd grade. Your child is expected to to turn the completed packet in to Mrs. Marking (4th grade) on the first day of the 2023-2024 school year. Please encourage your child to schedule time throughout the summer to work on the packet; do not wait until the end of summer to begin.

Reminders for your child:

- Read and follow all directions.
- Show work for ANY/ALL problems in an organized manner and number each problem to receive full credit.

Have a great summer!

Sincerely,

Mrs. Weeks

Name _____

Algebra • Find Unknown Numbers

Lily has 20 stuffed animals. She wants to put the same number of stuffed animals on each of 5 shelves. How many stuffed animals will Lily put on each shelf?
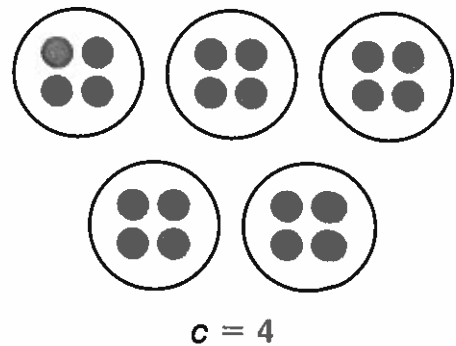
Find the unknown number. $5 \times c = 20$

You can use counters to find the unknown number.

Step 1 Use 20 counters.

Step 2 Make 5 equal groups. Place 1 counter in each of the groups until you have placed all 20 counters.

Step 3 Count the number of counters in each group.
4 counters

$c = 4$

So, Lily will put 4 stuffed animals on each of the 5 shelves.

$5 \times 4 = 20$

Find the unknown number.

1. $3 \times b = 24$	2. $n \times 7 = 21$	3. $36 = 4 \times z$	4. $7 \times 8 = s$
$b =$ _____	$n =$ _____	$z =$ _____	$s =$ _____
5. $r \times 5 = 45$	6. $\blacksquare \times 4 = 40$	7. $p = 3 \times 4$	8. $m \times 6 = 42$
$r =$ _____	$\blacksquare =$ _____	$p =$ _____	$m =$ _____
9. $6 \times h = 36$	10. $63 = 7 \times d$	11. $3 \times y = 6$	12. $32 = 4 \times \blacktriangle$
$h =$ _____	$d =$ _____	$y =$ _____	$\blacktriangle =$ _____

Multiply Multiples of 10 by 1-Digit Numbers

You can use place value and regrouping to multiply multiples of 10.

Find 3 × 40.

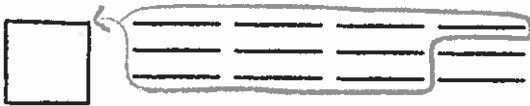| **Step 1** Use quick pictures to draw 3 groups of 40.	**THINK**	**RECORD**
——— ——— ——— ——— ——— ——— ——— ——— ——— ——— ——— ———	Multiply the ones. 3 × 0 ones = **0** ones.	40 × 3 —— **0**
Step 2 Regroup the 12 tens.	Multiply the tens. 3 × **4** tens = 12 tens Regroup the 12 tens as **1** hundred 2 tens	40 × 3 —— 120

So, 3 × 40 = 120.

Find the product. Draw a quick picture.

1. 4 × 50 = _____

2. 7 × 30 = _____

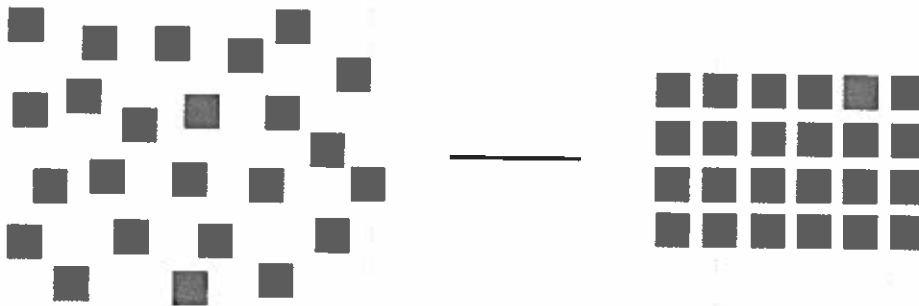3. _____ = 9 × 20

4. 6 × 70 = _____

Model with Arrays

You can use arrays to model division.

How many rows of 6 tiles each can you make with 24 tiles?

Use square tiles to make an array. Solve.

Step 1 Use 24 tiles.

Step 2 Make as many rows of 6 as you can.

You can make 4 rows of 6.

So, there are 4 rows of 6 tiles in 24.

Use square tiles to make an array. Solve.

1. How many rows of 7 are in 28?

2. How many rows of 5 are in 15?

Make an array. Then write a division equation.

3. 18 tiles in 3 rows

4. 20 tiles in 4 rows

5. 14 tiles in 2 rows

6. 36 tiles in 4 rows

Multiplication and Division Match

Solve. Then draw a line to match each multiplication
equation to a related division equation.

1. $2 \times 8 =$ _____ •   **A** $12 \div 2 = 6$

2. $5 \times 8 =$ _____ •   **B** $42 \div 7 = 6$

3. $3 \times 9 =$ _____ •   **C** $18 \div 3 = 6$

4. $6 \times 7 =$ _____ •   **D** $40 \div 8 = 5$

5. $2 \times 6 =$ _____ •   **E** $24 \div 6 = 4$

6. $5 \times 7 =$ _____ •   **F** $27 \div 9 = 3$

7. $6 \times 4 =$ _____ •   **G** $24 \div 3 = 8$

8. $8 \times 8 =$ _____ •   **H** $36 \div 9 = 4$

9. $3 \times 6 =$ _____ •   **I** $16 \div 2 = 8$

10. $9 \times 4 =$ _____ •   **J** $18 \div 2 = 9$

11. $9 \times 2 =$ _____ •   **K** $64 \div 8 = 8$

12. $8 \times 3 =$ _____ •   **L** $35 \div 5 = 7$

Divide by 6

You can use a multiplication table to divide by 6.

Find the quotient. 42 ÷ 6

Think of a related multiplication fact.
6 × ■ = 42

Find the row for the factor, 6.

Look right to find the product, 42.

Look up to find the unknown factor, 7.

7 is the factor you multiply by 6 to get the product, 42.

So, 6 × 7 = 42.

Use this related multiplication fact to find the quotient.

Since 6 × 7 = 42, then 42 ÷ 6 = 7.

So, 42 ÷ 6 = 7.

×	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

Find the unknown factor and quotient.

1. 6 × ____ = 30   30 ÷ 6 = ____

2. 6 × ____ = 48   48 ÷ 6 = ____

3. 6 × ____ = 18   18 ÷ 6 = ____

4. 6 × ____ = 24   24 ÷ 6 = ____

Find the quotient.

5. 6 ÷ 6 = ____

6. 42 ÷ 6 = ____

7. 54 ÷ 6 = ____

8. 12 ÷ 6 = ____

9. 0 ÷ 6 = ____

10. 36 ÷ 6 = ____
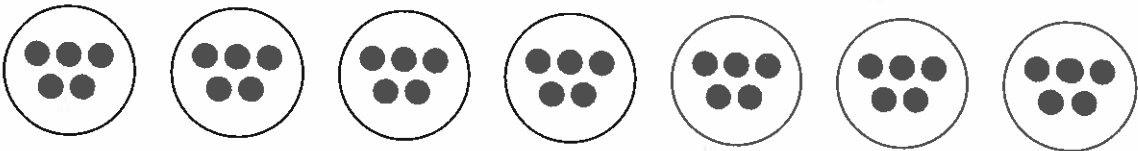
11. 6 ÷ 1 = ____

12. 60 ÷ 6 = ____

Divide by 7

You can use counters to divide by 7.

Find the quotient. 35 ÷ 7

Step 1 Draw 7 circles to show 7 groups. Place 1 counter in each group.
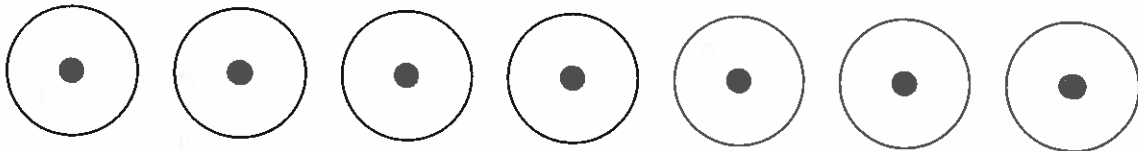
Step 2 Continue placing 1 counter at a time in each group until all 35 counters are placed.

There are **5** counters in each group.

So, 35 ÷ 7 = **5**.

Find the unknown factor and quotient.

1. $7 \times$ ____ $= 63$ $63 \div 7 =$ ____ | 2. $7 \times$ ____ $= 7$ $7 \div 7 =$ ____

3. $7 \times$ ____ $= 14$ $14 \div 7 =$ ____ | 4. $7 \times$ ____ $= 28$ $28 \div 7 =$ ____

Find the quotient.

5. ____ $= 56 \div 7$ 6. $21 \div 7 =$ ____   7. $42 \div 7 =$ ____   8. $28 \div 7 =$ ____

9. ____ $= 35 \div 7$ 10. $63 \div 7 =$ ____   11. $49 \div 7 =$ ____   12. $70 \div 7 =$ ____

Divide by 8

You can use a number line to divide by 8.

Find the quotient. 24 ÷ 8

Step 1 Start at 24. Count back by 8s as many times as you can until you reach 0. Draw the jumps on the number line.
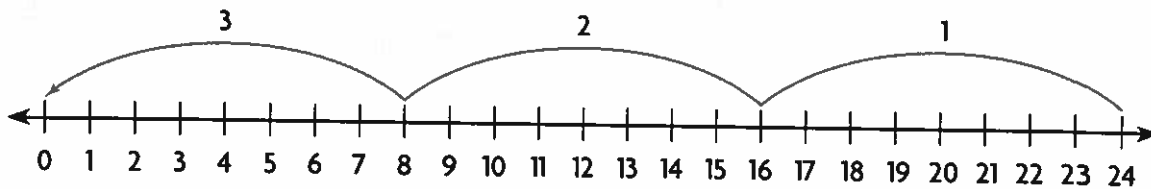
Step 2 Count the number of times you jumped back 8.

You jumped back by 8 **three** times.

So, 24 ÷ 8 = 3.

Find the unknown factor and quotient.

1. ____ × 8 = 72   72 ÷ 8 = ____ | 2. 8 × ____ = 48   48 ÷ 8 = ____

3. 8 × ____ = 40   40 ÷ 8 = ____ | 4. ____ × 8 = 16   16 ÷ 8 = ____

Find the quotient.

5. 32 ÷ 8 = ____   6. ____ = 8 ÷ 8   7. 64 ÷ 8 = ____

8. 56 ÷ 8 = ____   9. ____ = 0 ÷ 8   10. 80 ÷ 8 = ____

11. 24 ÷ 8 = ____   12. ____ = 72 ÷ 8   13. ____ = 48 ÷ 8

Divide by 9

You can use repeated subtraction to divide by 9.

Find the quotient.
36 ÷ 9

Step 1 Start with 36. Subtract 9 as many times as you can
until you reach 0. Write the answers.

$$\begin{array}{r}36\\-9\\\hline27\end{array} \longrightarrow \begin{array}{r}27\\-9\\\hline18\end{array} \longrightarrow \begin{array}{r}18\\-9\\\hline9\end{array} \longrightarrow \begin{array}{r}9\\-9\\\hline0\end{array}$$

Step 2 Count the number of times you subtract 9.

You subtracted 9 **four** times.

So, 36 ÷ 9 = **4**.

Find the quotient.

1. 9 ÷ 9 = ____

2. 27 ÷ 9 = ____

3. 18 ÷ 9 = ____

4. 36 ÷ 9 = ____

5. ____ = 72 ÷ 9

6. ____ = 63 ÷ 9

7. 45 ÷ 9 = ____

8. ____ = 18 ÷ 9

9. ____ = 54 ÷ 9

10. 9)‾63‾

11. 9)‾81‾

12. 9)‾36‾

13. 8)‾48‾

14. 4)‾36‾

15. 7)‾28‾

Problem Solving • Two-Step Problems

Chloe bought 5 sets of books. Each set had the same
number of books. She donated 9 books to her school.
Now she has 26 books left. How many books
were in each set that Chloe bought?

Read the Problem	Solve the Problem
What do I need to find? I need to find how many __books__ were in each ____set____ .	First, begin with the number of books left. Add the number of books donated. $$\begin{array}{ccc} \text{books} & \text{books} & \begin{array}{c} t, \text{total} \\ \text{number of} \end{array} \\ \text{left} & \text{donated} & \text{books} \\ \downarrow & \downarrow & \downarrow \\ 26 & + \ 9 & = \ t \\ & \underline{35} & = \ t \end{array}$$
What information do I need to use? I need to use the information given: Chloe bought _5_ sets of books. She donated _9_ books. She has _26_ books left.	Then divide to find the number of books in each set. $$\begin{array}{ccc} \begin{array}{c} t, \text{total} \\ \text{number of} \\ \text{books} \end{array} & \begin{array}{c} \text{sets of} \\ \text{books} \end{array} & \begin{array}{c} s, \text{books} \\ \text{in each} \\ \text{set} \end{array} \\ \downarrow & \downarrow & \downarrow \\ 35 & \div \ 5 & = \ s \\ & \underline{7} & = \ s \end{array}$$
How will I use the information? I will use the information to __act out__ the problem.	So, _7_ books were in each set.

Solve the problem.

1. Jackie had 6 equal packs of
pencils. Her friend gave her
4 more pencils. Now she has
52 pencils. How many pencils
were in each pack?

2. Tony had 4 equal sets of sports
cards. He gave his friends 5 cards.
Now he has 31 cards. How many
cards were in each set?

_____ _____

Order of Operations

Danny buys a marker for $4. He also buys 5 pens for
$2 each. How much money does he spend?

You can write $4 + 5 × $2 = c to describe and solve
the problem.

Find $4 + 5 × $2 = c.

When there is more than one type of
operation in a problem, use the **order
of operations,** or the set of rules for
the order in which to do operations.

Order of Operations
First: Multiply and divide from left to right.
Then: Add and subtract from left to right.

Step 1 Multiply from left to right.

$4 + 5 × $2 = c

↑
multiply

$4 + $10 = c

Step 2 Next, add from left to right.

$4 + $10 = c

↑
add

$14 = c

So, Danny spends $14 .

**Write *correct* if the operations are listed in the correct
order. If not correct, write the correct order of operations.**

1. 5 + 6 × 3   add, multiply

2. 20 ÷ 4 − 3   divide, subtract

_____

_____

Follow the order of operations to find the unknown number.

3. 9 − 7 + 2 = k

k = ____

4. 8 + 2 × 5 = m

m = ____

5. 7 × 8 − 6 = g

g = ____

6. 16 + 4 ÷ 2 = s

s = ____

7. 12 − 6 ÷ 2 = y

y = ____

8. 36 ÷ 6 + 13 = f

f = ____

Name _____

Find Part of a Group Using Unit Fractions

Lauren bought 12 stamps for postcards. She gave Brianna $\frac{1}{6}$ of them. How many stamps did Lauren give to Brianna?
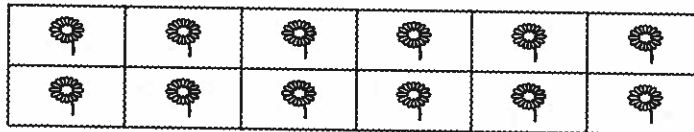
Step 1 Find the total number of stamps. **12 stamps**

Step 2 Since you want to find $\frac{1}{6}$ of the group, there should be 6 equal groups. Circle one of the groups to show $\frac{1}{6}$.
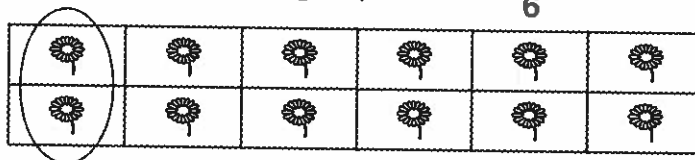
Step 3 Find $\frac{1}{6}$ of the stamps. How many stamps are in 1 group? **2 stamps**

So, Lauren gave Brianna 2 stamps. $\frac{1}{6}$ of 12 = 2

Circle equal groups to solve. Count the number of shapes in 1 group.

1. $\frac{1}{4}$ of 8 = _____

2. $\frac{1}{3}$ of 9 = _____

3. $\frac{1}{4}$ of 16 = _____
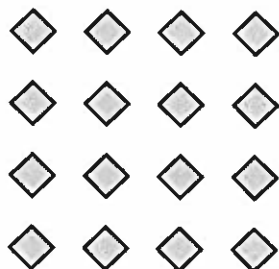
4. $\frac{1}{6}$ of 18 = _____
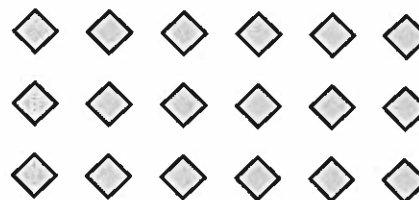
Problem Solving • Find the Whole Group Using Unit Fractions

There are 3 apple juice boxes in the cooler. One fourth
of the juice boxes in the cooler are apple juice. How many
juice boxes are in the cooler?

Read the Problem	Solve the Problem
What do I need to find? I need to find <u>how many juice boxes</u> are in the cooler.	**Describe how to draw a diagram to solve.** The denominator in $\frac{1}{4}$ tells you that there are <u>4</u> parts in the whole group. Draw 4 circles to show <u>4</u> parts.
What information do I need to use? There are <u>3</u> apple juice boxes. <u>One fourth</u> of the juice boxes are apple juice.	Since 3 juice boxes are $\frac{1}{4}$ of the group, draw <u>3</u> counters in the first circle. Since there are <u>3</u> counters in the first circle, draw <u>3</u> counters in each of the remaining circles. Then count all of the counters.
How will I use the information? I will use the information in the problem to draw a diagram.	So, there are <u>12</u> juice boxes in the cooler.

1. Max has 3 beta fish in his fish tank. One half of his fish are beta fish. How many fish does Max have in his tank?

2. Two boys are standing in line. One sixth of the students in line are boys. How many students are standing in line?

Compare Fractions with the Same Denominator

Pete's Prize Pizzas makes a special pizza. Of the toppings, $\frac{1}{4}$ is peppers and $\frac{3}{4}$ is ham. Does the pizza have more peppers or ham?

Compare $\frac{1}{4}$ and $\frac{3}{4}$.

Step 1 The denominators of both fractions are the same, **4**. Use fraction circles divided into fourths to model the fractions.

Step 2 Shade 1 part of the first circle to show $\frac{1}{4}$.
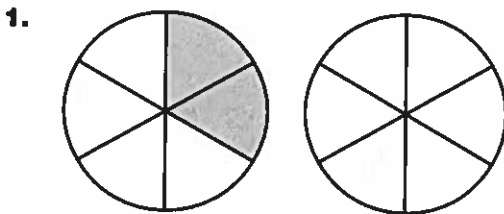
Shade **3** parts of the second circle to show $\frac{3}{4}$.
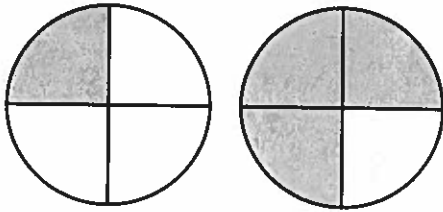
Step 3 Compare. 3 parts is more than 1 part.

$\frac{3}{4} \bigcirc\!\!\!> \frac{1}{4}$

So, the pizza has more **ham**.

Compare. Write <, >, or =.

1.

$\frac{2}{6} \bigcirc \frac{1}{6}$

2.
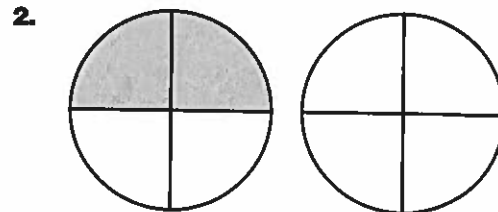
$\frac{2}{4} \bigcirc \frac{2}{4}$

3. $\frac{1}{3} \bigcirc \frac{2}{3}$

4. $\frac{5}{8} \bigcirc \frac{3}{8}$

5. $\frac{1}{4} \bigcirc \frac{3}{4}$

6. $\frac{4}{8} \bigcirc \frac{4}{8}$

Name _____

Compare Fractions

Mrs. Brown's recipe uses $\frac{2}{3}$ cup of flour. Mrs. Young's recipe
uses $\frac{3}{4}$ cup of flour. Which recipe uses more flour?
Compare $\frac{2}{3}$ and $\frac{3}{4}$.

• You can compare fractions using fraction strips.

Step 1 Model each fraction.

Step 2 Compare the lengths of the models.
The length of the $\frac{3}{4}$ model is greater
than the length of the $\frac{2}{3}$ model.

$$\frac{3}{4} \bigotimes \frac{2}{3}$$
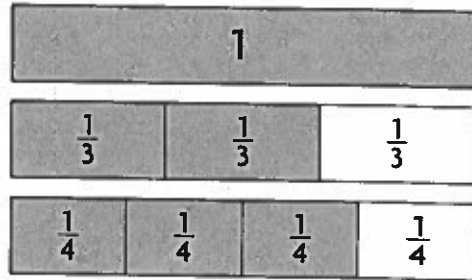
So, Mrs. Young's recipe uses more flour.

Compare $\frac{3}{6}$ and $\frac{4}{6}$. Which is greater?

• The denominators are the same, so compare the numerators.

$3 < 4$, so $\frac{3}{6} < \frac{4}{6}$.

So, $\frac{4}{6}$ is greater than $\frac{3}{6}$. $\frac{4}{6} \bigotimes \frac{3}{6}$

Compare. Write $<$, $>$, or $=$. Write the strategy you used.

1. $\frac{2}{8} \bigcirc \frac{3}{8}$

_____

2. $\frac{7}{8} \bigcirc \frac{5}{6}$

_____

3. $\frac{3}{4} \bigcirc \frac{3}{6}$

_____

4. $\frac{3}{6} \bigcirc \frac{5}{6}$

_____

Model Equivalent Fractions

Equivalent fractions are two or more fractions that name the same amount.

You can use fraction circles to model equivalent fractions.

Find a fraction that is equivalent to $\frac{1}{2}$. $\frac{1}{2} = \frac{\square}{4}$

Step 1 Look at the first circle. It is divided into 2 equal parts. Shade one part to show $\frac{1}{2}$.
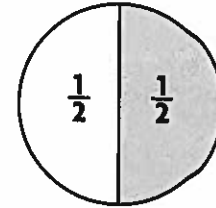
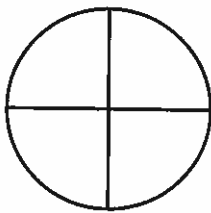**Step 2** Draw a line to divide the circle into 4 equal parts because 4 is the denominator in the second fraction.

Step 3 Count the number of parts shaded now. There are 2 parts out of 4 parts shaded.
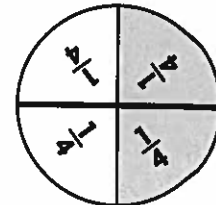
$\frac{1}{2} = \frac{2}{4}$ So, $\frac{1}{2}$ is equivalent to $\frac{2}{4}$.

Shade the model. Then divide the pieces to find the equivalent fraction.

1.

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

2.
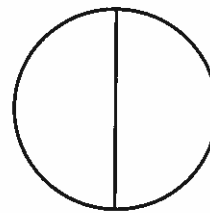
$\frac{1}{2} = \frac{\square}{8}$

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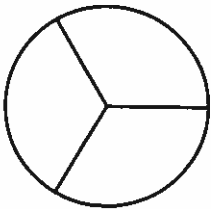
$\frac{2}{3} = \frac{\square}{6}$

4.
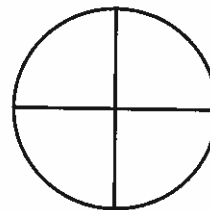
$\frac{3}{4} = \frac{\square}{8}$

Measure Time Intervals

Julia starts her homework at 4:20 P.M. She finishes at 5:00 P.M. How much time does Julia spend doing homework?

Elapsed time is the amount of time that passes from the start of an activity to the end of the activity.

Use a number line to find elapsed time.

Step 1 Begin with the start time, 4:20.

Step 2 Skip count **by tens** to count the minutes from 4:20 to 5:00.

Step 3 Label the number line. Draw jumps for every 10 minutes until you get to 5:00.

$$10 + 10 + 10 + 10 = 40 \text{ minutes}$$

4:20   4:30   4:40   4:50   5:00
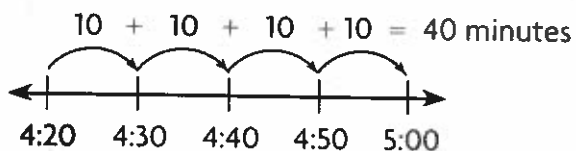
Step 4 Add the minutes that have elapsed. 40 minutes

So, Julia spends __40 minutes__ doing homework.

Use the number line to find the elapsed time.

1. Start: 3:15 P.M.   End: 3:45 P.M.

_____

2. Start: 11:05 A.M.   End: 11:56 A.M.

_____

Find the elapsed time.

3. Start: 4:10 P.M.   End: 4:46 P.M.

_____

4. Start: 10:30 A.M.   End: 10:59 A.M.

_____

Name _____

Area of Combined Rectangles

You can break apart a figure into rectangles to find the total area of the figure.
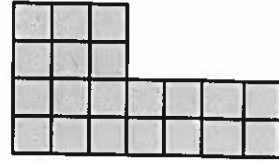
Step 1 Draw a line to break apart the figure into two rectangles.

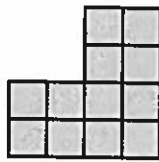**Step 2** Count the number of unit squares in each rectangle.
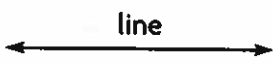
1	2	3
4	5	6

7	8	9	1	2	3	4
10	11	12	5	6	7	8

      12   8
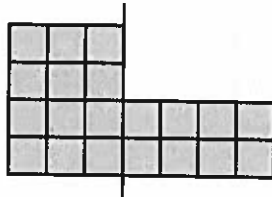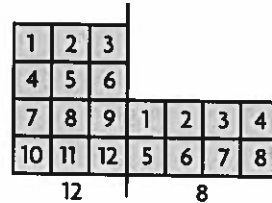
Step 3 Add the number of unit squares in each rectangle to find the total area.

   12 + 8 = 20 unit squares

So, the area of the figure is **20** square units.

**Draw a line to break apart the figure into rectangles.
Find the area of the figure.**

1.
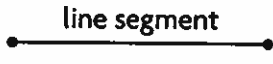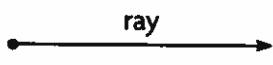
2.

_____

3.

4.

_____   _____

Name _____
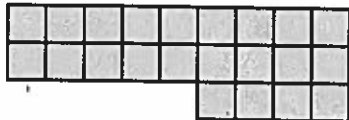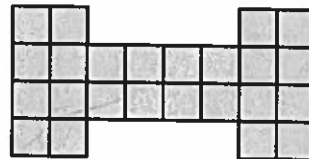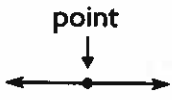
Describe Plane Shapes

You can use math words to describe plane shapes.

point — an exact position or location

line — a straight path that goes in two directions without end

endpoints — points that are used to show segments of lines

line segment — part of a line and has 2 endpoints

ray — part of a line that has 1 endpoint and continues in one direction

A **plane shape** is a shape on a flat surface. It is formed by points that make curved paths, line segments, or both. Plane shapes can be open or closed.

A **closed shape** starts and ends at the same point.

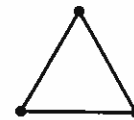An **open shape** does not start and end at the same point.

Look at this plane shape called a triangle.

It is a closed shape.

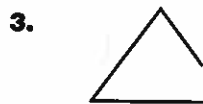It has 3 line segments.

The line segments meet at the endpoints.

Circle all the words that describe the shape.

1.

line
line segment

2.

point
ray

3.

closed shape
open shape

4.

closed shape
open shape

Write whether the shape is *open* or *closed*.

5. _____
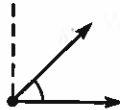
6. _____

7. _____

8. _____

Name _____

Describe Angles in Plane Shapes

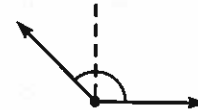There are different types of angles.

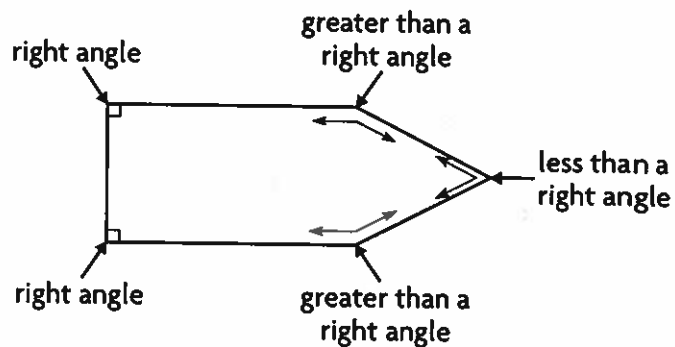|		
A **right angle** forms a square corner.	Some angles are less than a right angle.	Some angles are greater than a right angle.

**Look at this shape.
Describe the angles.**

There are 2 right angles.

There are 2 angles greater than a right angle.
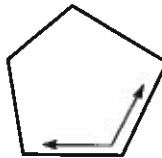
There is 1 angle less than a right angle.

right angle   greater than a right angle

less than a right angle

right angle   greater than a right angle

Use the corner of a sheet of paper to tell whether the angle is a right angle, less than a right angle, or greater than a right angle.

1.
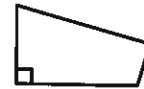
2.

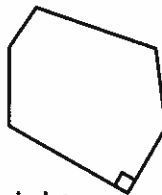**3.**

_____   _____   _____

Write how many of each type of angle the shape has.

4.

____ right

____ less than a right

____ greater than a right

5.

____ right

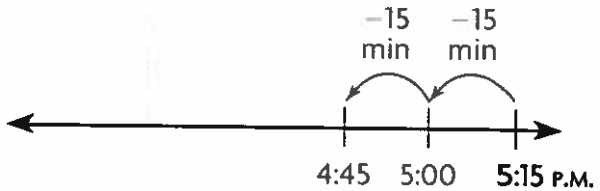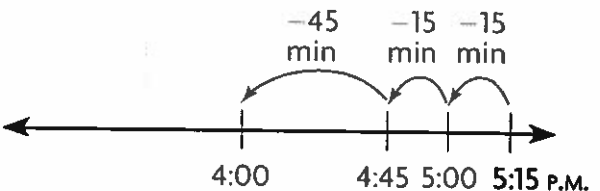____ less than a right

____ greater than a right

6.

____ right

____ less than a right

____ greater than a right

Name _____

Problem Solving • Time Intervals

As soon as Carter got home, he worked on his book report for 45 minutes. Then he did chores for 30 minutes. He finished at 5:15 P.M. At what time did Carter get home?

Read the Problem	Solve the Problem
What do I need to find? I need to find what _time_ Carter got _home_.	• Find Carter's 5:15 P.M. finishing time on the number line. • Count back 30 minutes using two 15-minute jumps to find the time Carter started his chores. __4:45 P.M.__ −15 min −15 min 4:45 5:00 5:15 P.M.
What information do I need to use? Carter worked for _45 minutes_ on his report. He did chores for _30 minutes_. He finished at _5:15 P.M._	
How will I use the information? I will use a number line and count back to find the time Carter got home.	• Count back 45 minutes for the time Carter worked on his report. The jumps end at __4:00 P.M.__ −45 min −15 min −15 min 4:00 4:45 5:00 5:15 P.M. So, Carter got home at __4:00 P.M.__

1. Kiera must be at school at 7:45 A.M. The ride to school takes 15 minutes. She needs 45 minutes to eat breakfast and get ready. At what time should Kiera get up?

2. Jack and his family go to the movies. First, they eat lunch at 1:30 P.M. It takes them 40 minutes to eat. Then they drive 25 minutes to get to the movie theater. At what time do Jack and his family get to the theater?