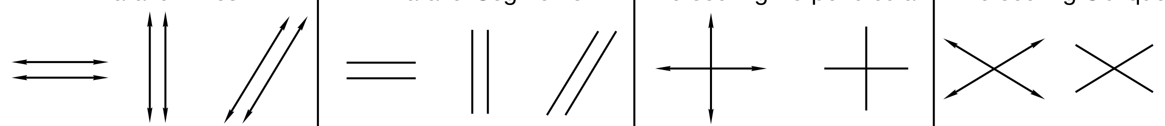
Name ___________________________________

• Pairs of Lines
• Angles

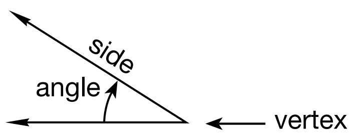
Pairs of Lines

- When lines cross, they **intersect**.
- Lines that go in the same directions and do not intersect are called **parallel lines**.
- Lines that intersect to form square corners are **perpendicular**.
- Intersecting lines that do not form square corners are **oblique**.

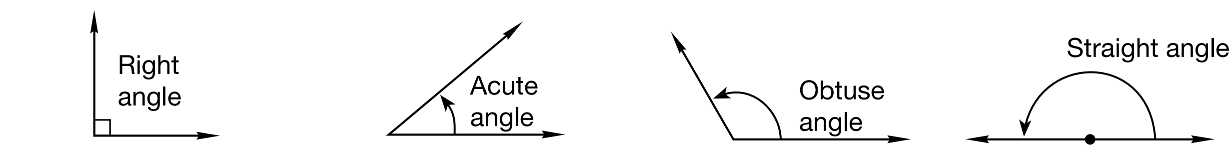
Types of Lines									
Parallel Lines			Parallel Segments			Intersecting Perpendicular		Intersecting Oblique	
									
Horizontal	Vertical	Oblique	Horizontal	Vertical	Oblique	Lines	Segments	Lines	Segments

Angles

- **Angles** form when lines, line segments, or rays intersect.
- A **vertex** is where 2 sides of an angle meet.



- Angles can be **right**, **acute**, **obtuse**, or **straight**.



The square corner fits the corner of your paper. | Less than a right angle (a cute little angle) | More than a right angle | Makes a straight line, line segment, or ray

---

Practice:

1. Draw two vertical lines.

2. Draw two intersecting oblique line segments.

3. Draw two horizontal line segments.

4. Draw two perpendicular lines.

Draw an example of each angle.

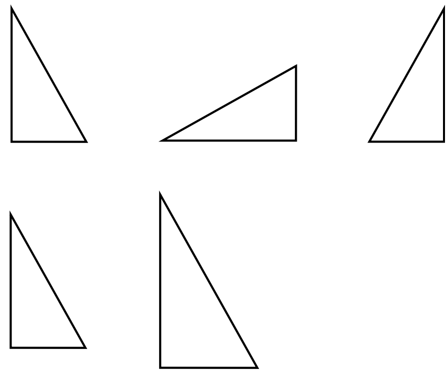
5. right angle

6. obtuse angle

7. acute angle

Name ______________________________

• Polygons

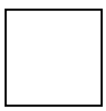


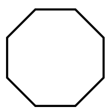
- **Polygons** are closed, flat shapes formed from straight line segments.
- **Congruent** figures have the same shape and size. Their angles and sides match.
- **Similar** figures have the same shape and matching angles but do not have to be the same size.

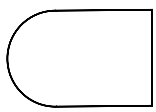
Practice:

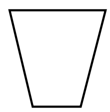
1. Draw a triangle with an obtuse angle.

2. Which shape is not a polygon?

A 

B 

C 

D 

3. Draw two similar, but not congruent rectangles.

4. Can a triangle have more than one right angle? __________

Name ______________________________

• Rounding Numbers and Estimating

- To make arithmetic easier, we can **round** a number. We "round up" or "round down" to the number that is closest in value to the given number.
- To round a number to the nearest ten, we look at the ones place. If the ones place is less than 5, we round down. If the tens place is equal to or greater than 5, we round up.

Example: Round these numbers to the nearest ten:

1$\underline{2}$ 2 is less than 5, so we round down to 10.

1$\underline{7}$ 7 is greater than 5, so we round up to 20.

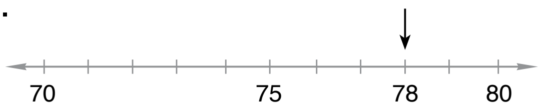
- Rounding numbers can help us **estimate** the answer to a problem. Estimated answers are close to, but not equal to, the exact answer.

Example: Estimate 12×17.

Think $10 \times 20 = 200$. We can estimate that 12×17 is about 200.

- One way to see which number to round a given number to is by using a number line.

Example: Round 78 to the nearest ten.
78 is closer to 80 than 70.
78 rounds up to 80.



Practice:

Round each number to the nearest ten.

1. 54 ________ **2.** 67 ________

3. 12 ________ **4.** 85 ________

5. 23 ________ **6.** 71 ________

Estimate each calculation by rounding two-digit factors to the nearest ten before multiplying.

7. $23 \times 9 =$ ________ **8.** $4 \times 51 =$ ________

9. $7 \times 67 =$ ________ **10.** $96 \times 4 =$ ________

Name ____________________

• Division with Zeros in the Quotient

- Use the division algorithm (divide, multiply, subtract, "bring down").
- Place a digit above each digit.
- Use zero as a placeholder when the next digit in the dividend cannot be divided.
- Any number "left over" becomes the remainder.

Examples:

$$\begin{array}{r} 106 \text{ R3} \\ 7\overline{)745} \\ \underline{7} \\ 04 \\ \underline{0} \\ 45 \\ \underline{42} \\ 3 \end{array} \qquad \begin{array}{r} {\scriptstyle 0}33 \text{ R3} \\ 7\overline{)234} \\ \underline{0} \\ 23 \\ \underline{21} \\ 24 \\ \underline{21} \\ 3 \end{array}$$

Practice:

Divide. Remember to write the dollar sign in money problems.

1. $2\overline{)19}$ R

2. $5\overline{)328}$ R

3. $3\overline{)217}$ R

4. $7\overline{)609}$

5. $5\overline{)\$4.25}$

6. $6\overline{)\$3.72}$

7. $8\overline{)7100}$ R

8. $4\overline{)3210}$ R

9. $3\overline{)625}$ R

10. $2\overline{)\$8.94}$

11. $9\overline{)8605}$ R

12. $7\overline{)2850}$ R

• Word Problems About Comparing, and Elapsed Time

• Place the greater number on top.

Larger	Later
− Smaller	− Earlier
Difference	Difference

• Watch for these keywords in elapsed-time problems.

difference	younger
larger	older
smaller	more
	less

Practice:

Write an equation and solve the problem. Remember to write the units.

1. A kickball team has 6 players. They need 18 players. How many more players does the team need?

____

2. The Empire State Building is 1250 feet tall. If the Sears Tower is 1450 feet tall, how many feet less is the Empire State Building?

____

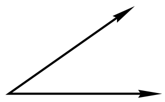
3. Halley's comet appeared in the sky in 1985. The comet will be visible again in 2061. How many years are there between the times the comet is visible?

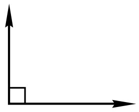
____

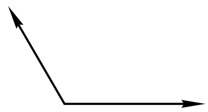
Name ______________________________

• Classifying Triangles

• Three types of angles are **acute** angles, **right** angles, and **obtuse** angles.

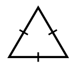
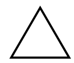
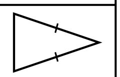
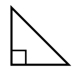
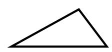
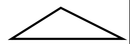

Acute angle


Right angle

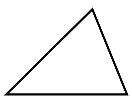

Obtuse angle

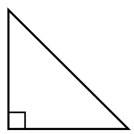
• Triangles can be classified by their **angles**, their **sides**, or both.

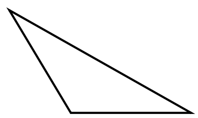
Classifying Triangles

By Sides			By Angles		
Type	Characteristic	Example	Type	Characteristic	Example
Equilateral triangle	Three sides of equal length		**Acute triangle**	All acute angles	
Isosceles triangle	At least two sides of equal length		**Right triangle**	One right angle	
Scalene triangle	Three sides of unequal length		**Obtuse triangle**	One obtuse angle	

Examples:

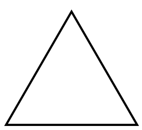

isosceles and **acute**


isosceles and **right**

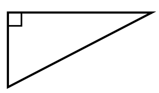

isosceles and **obtuse**

Practice:

Classify each triangle by its sides.

1. 

____

2. 

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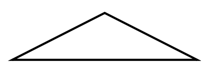
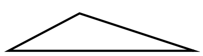
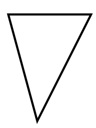
3. 

____

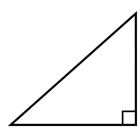
Classify each triangle by its angles.

4. 

____

5. 

____

6. 

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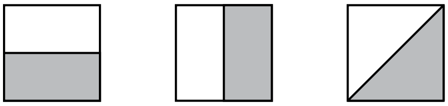
Name ______________________________

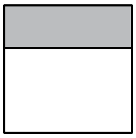
• Drawing Pictures of Fractions

- There are many ways to divide figures into equal fractional parts.



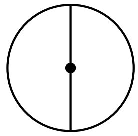
These show $\frac{1}{2}$.

- Remember, not all fractional parts are equal parts.

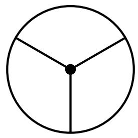


This does not show equal halves, but it might show $\frac{1}{3}$ and $\frac{2}{3}$.

- To divide a circle in half:
  1. Put a point in the center.
  2. Draw a line segment through the center.



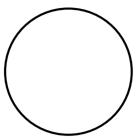
- To divide a circle in thirds:
  1. Put a point in the center.
  2. Draw a "Y" from the center.



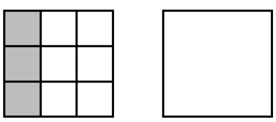
Practice:

1. Shade $\frac{1}{5}$ of the rectangle.

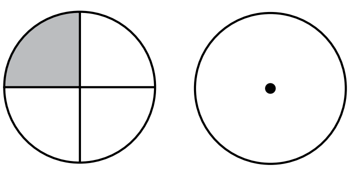
2. Shade $\frac{2}{3}$ of the circle.



3. The shaded portion of the first square represents the fraction $\frac{3}{9}$. Use the second square to show another way to shade $\frac{3}{9}$.

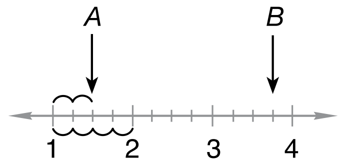


4. The shaded portion of the first circle represents the fraction $\frac{1}{4}$. Use the second circle to show a way to shade $\frac{3}{4}$.



Name ____________________

• Fractions and Mixed Numbers on a Number Line



- To identify a fraction or mixed number on a number line:
    1. Count the parts between the whole numbers. (4 parts, so fourths)
    2. Name the arrow as a fraction. (*A*: $\frac{2}{4}$, *B*: $\frac{3}{4}$)
    3. Don't forget the whole number. (*A*: $1\frac{2}{4}$, *B*: $3\frac{3}{4}$)

Practice:

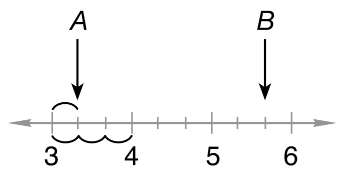
Name the fraction or mixed number marked by each arrow on these number lines.

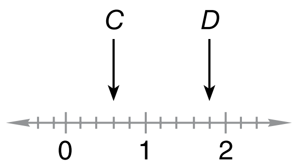
1. *A* = ________

2. *B* = ________

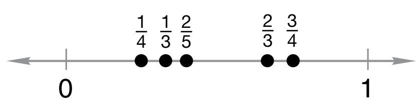
3. *C* = ________

4. *D* = ________





Three fractions are graphed on the number line below. Refer to the number line to compare the fractions in problems 5–7.



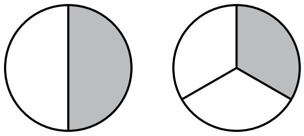
5. $\frac{1}{4}$ ◯ $\frac{1}{3}$ **6.** $\frac{2}{5}$ ◯ $\frac{2}{5}$ **7.** $\frac{1}{2}$ ◯ $\frac{2}{3}$

8. Place the following numbers on the number line below. $1\frac{1}{2}$, $1\frac{3}{4}$, $2\frac{1}{4}$

• Comparing Fractions by Drawing Pictures

- One way to compare fractions is to draw and shade congruent polygons to represent the fractions. Then we see which polygon is more shaded.

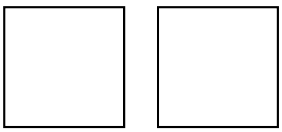
Example: $\frac{1}{2} > \frac{1}{3}$



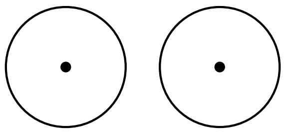
Practice:

Compare each pair of fractions. Draw pictures to illustrate the fractions.

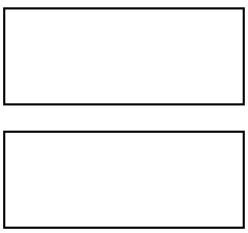
1. $\frac{1}{2} \bigcirc \frac{2}{4}$



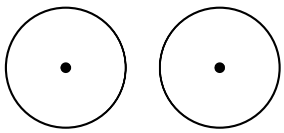
2. $\frac{1}{3} \bigcirc \frac{1}{4}$



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



4. $\frac{3}{4} \bigcirc \frac{7}{8}$

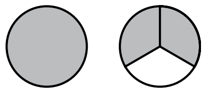


Name ____________________________________

• Writing Quotients with Mixed Numbers

- To draw pictures that show mixed numbers:
  1. Divide the circles into the parts shown in the **denominator**.
  2. Shade the **whole number** and the parts shown in the **numerator**.

  Example:



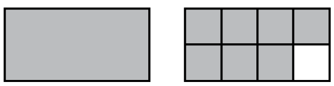
Whole number and a fraction
$1\frac{2}{3}$

- Some division problems will need the remainder shown as a fraction.
- Write the remainder over the divisor.

Example: $2\overline{)9}$ = 4 R1 $\longrightarrow$ $2\overline{)9}$ = $4\frac{1}{2}$ ← remainder (1) ← divisor (2)

Practice:

Write a mixed number to name the number illustrated.

1. 

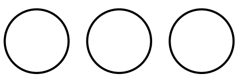
____

2. 

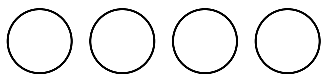
____

Shade the circles to represent each mixed number.

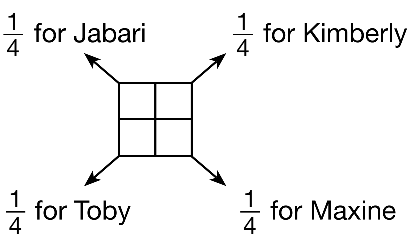
3. two and three fourths

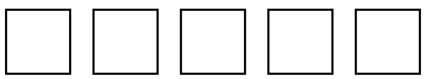


4. three and one third



5. Kimberly, Maxine, Toby, and Jabari will share five sandwiches. How many sandwiches are there for each person?





Show the remainder as a fraction.

$4\overline{)5}$ ________

