

## Concept: The Meaning of Fractions

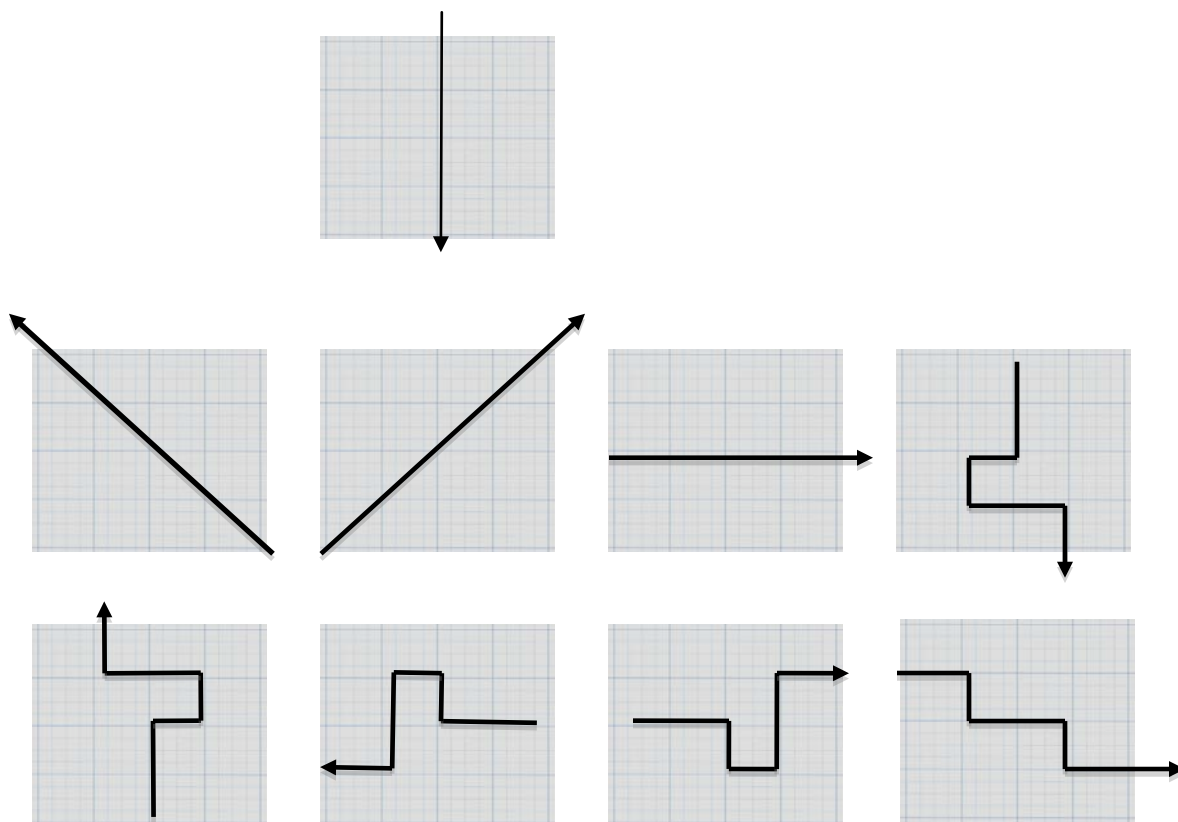
Name: \_\_\_\_\_

### Warm Up:

#### 1. Can You Share Your Brownies?

How many different ways can you divide the grids in **half** so that you and a friend can get the same amount of brownie to eat?

For Example:



How do you know that your solutions are halves? *Explain: This list is by no means exhaustive. There are definitely different combinations that can be made. We know that solutions are halves because each grid contains 16 squares and each half contains 8 squares.*

**COMPUTER COMPONENT**

**Instructions:** In follow the **Content Menu** path:

**Fractions > The Meaning of Fractions**



Work through all Sub Lessons of the following Lessons **in order**:

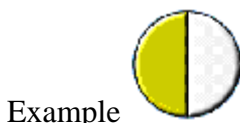
- |   |  |
|---|--|
| • <i>Fractions in the News</i>            | • <i>Pattern Blocks</i>                |
| • <i>Introduction...Think, Write, Say</i> | • <i>Fraction of a Pie</i>             |
| • <i>Parts of a Fraction</i>              | • <i>The Clock</i>                     |
| • <i>Part of a Whole</i>                  | • <i>Wholes and Parts</i>              |
| • <i>Parts of a Whole</i>                 | • <i>The Grid</i>                      |
| • <i>Write the Fraction</i>               | • <i>Fractions of a Shape</i>          |
| • <i>Fraction of a Set</i>                | • <i>Fractions of Odd Shapes</i>       |
| • <i>Fractions of a Gas Tank</i>          | • <i>Word Problems</i>                 |
| • <i>Fraction Strips</i>                  | • <i>Shapes in a Square</i>            |
| • <i>Comparison of Fractions</i>          | • <i>Parts of a Tangram</i>            |
| • <i>Fractions on a Number Line</i>       | • <i>Estimation on the Number Line</i> |



As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal.

**OFF COMPUTER EXERCISES**

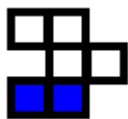
1. Describe the following representations of fractions in both numbers and words.



$\frac{1}{2}$  or One Half



$\frac{2}{3}$  or Two Thirds

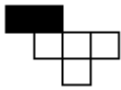





$\frac{2}{6}$  or Two Sixths







$\frac{3}{6}$  or Three Sixths

2. Complete the following table.

Diagram	Number of Squares Shaded	Total Number of Squares	Fraction of Shaded Squares
	2	6	$\frac{2}{6} = \frac{1}{3}$
	4	6	$\frac{4}{6} = \frac{2}{3}$
	3	4	$\frac{3}{4}$
	3	5	$\frac{3}{5}$

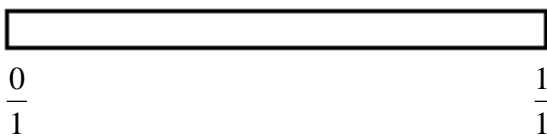
3. Use a pencil to shade in the required fraction of the gas tank.

	One Quarter	One Half	Three Quarters	The Whole
	Full	Full	Full	Full
Gas Tank				
	Empty	Empty	Empty	Empty

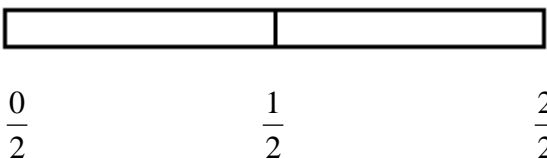
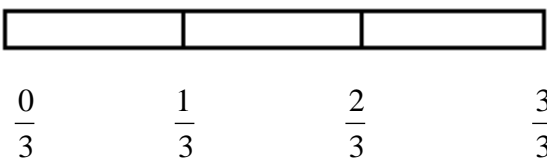
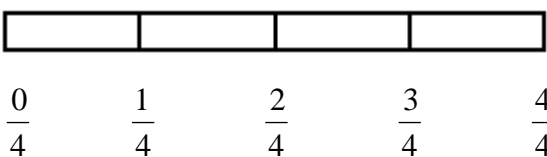
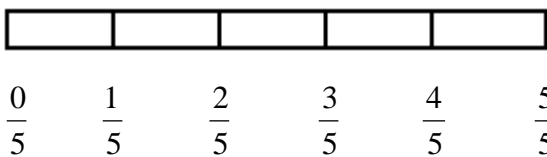
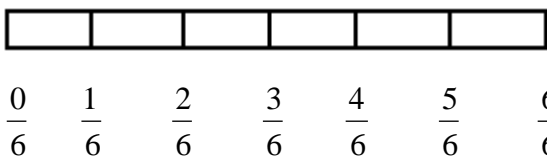
4. Fractions strips are excellent tools that are often used to illustrate common fractions.

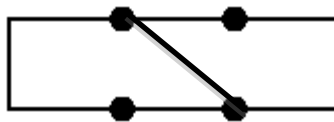
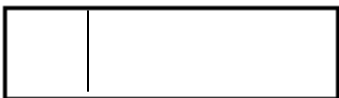
*Step 1:* Label each part of the strip with the appropriate fraction  
(The first two have been done for you).

*Step 2:* Fill in the blanks.



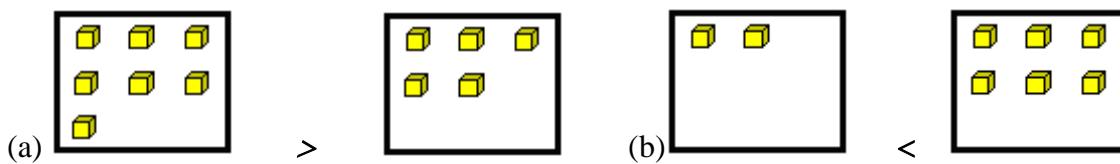
One Whole


 Each piece is  $\frac{1}{2}$  of the whole.

 Each piece is  $\frac{1}{3}$  of the whole.

 Each piece is  $\frac{1}{4}$  of the whole.

 Each piece is  $\frac{1}{5}$  of the whole.

 Each piece is  $\frac{1}{6}$  of the whole.

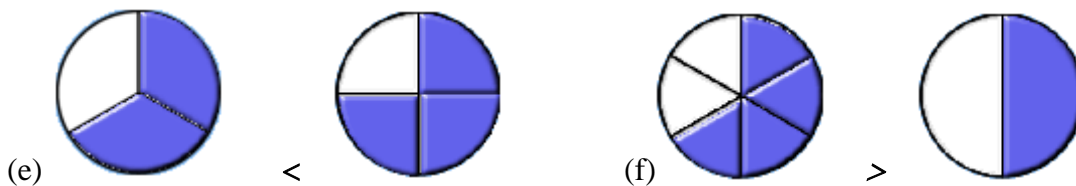
 Divide this line to show  $\frac{1}{2}$ .

 Join two opposing dots to show  $\frac{1}{2}$ .

 Divide this line to show  $\frac{1}{4}$ .

 Join two opposing dots to show  $\frac{1}{5}$ .

5. Place a **greater than** sign ( $>$ ) or a **less than** sign ( $<$ ) between each set of objects or fractions. *You may wish to look at the FRACTION STRIPS section to help you.*



(c)  $\frac{1}{2}$   $>$   $\frac{1}{5}$  (d)  $\frac{1}{4}$   $<$   $\frac{1}{3}$



(g)  $\frac{1}{2}$   $>$   $\frac{1}{3}$

(h)  $\frac{2}{3}$   $>$   $\frac{1}{2}$

(i)  $\frac{3}{4}$   $>$   $\frac{2}{3}$

(j)  $\frac{1}{4}$   $<$   $\frac{1}{3}$

(k) Two fifths  $<$  one half.

(l) Seven eighths  $>$  six sevenths

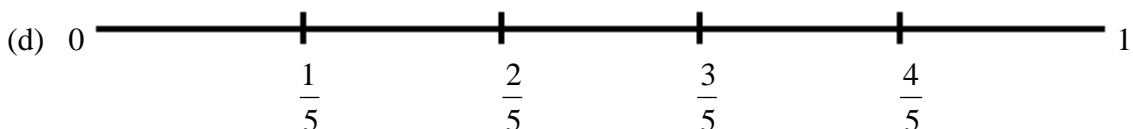
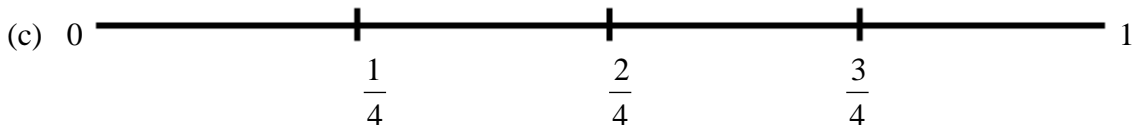
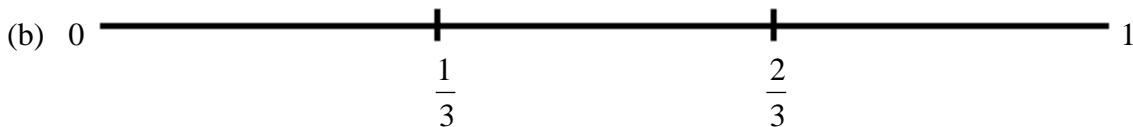
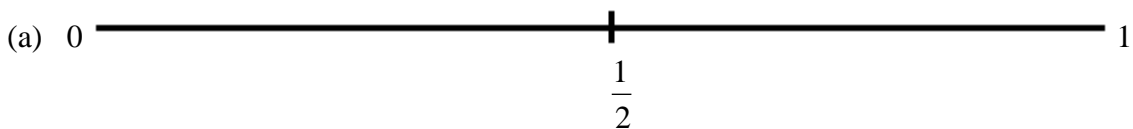
(m) Four fifths  $<$  eight ninths

6. Arrange each set of fractions in order from least to greatest:

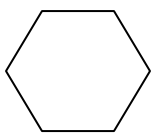

(a)  $\frac{2}{7}, \frac{2}{5}, \frac{2}{3}, \frac{2}{9}, \frac{2}{6} = \frac{2}{9}, \frac{2}{7}, \frac{2}{6}, \frac{2}{5}, \frac{2}{3}$

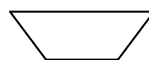
(b)  $\frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \frac{2}{3}, \frac{6}{7} = \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \frac{6}{7}$

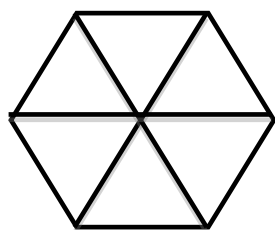
7. For each number line, plot the fractions on each line.



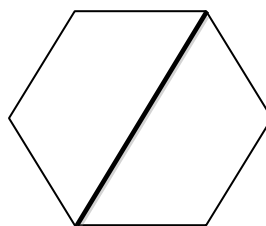
8.

If  represents one whole, then  represents  $\frac{1}{6}$

and  represents  $\frac{1}{2}$

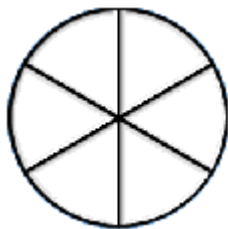


Divide this hexagon into sixths.

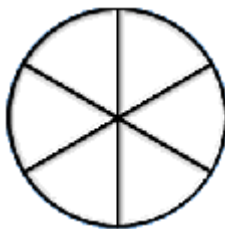


Divide this hexagon into halves.

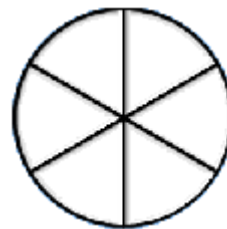
9. Shade three sixths of the pie, in three different ways.



Shade  $\frac{1}{2}$

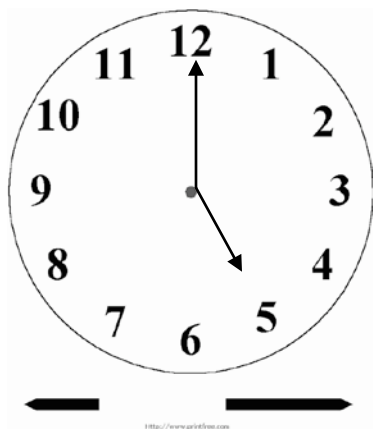


Shade every other piece

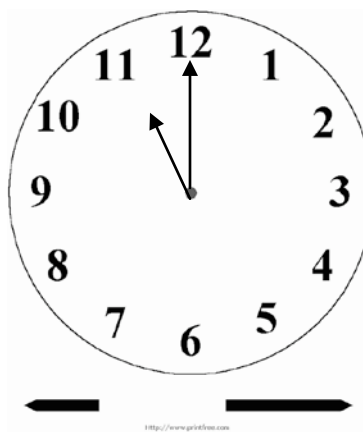


Shade top two and one bottom

10. Through what fraction of the clock has each hour hand swept?

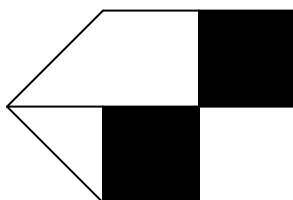


$\frac{5}{12}$



$\frac{11}{12}$

11. What fraction of the shape is shaded? (Hint: Break it into smaller pieces)



Shaded:  $\frac{2}{5}$

12.

(a) Joe has 23 candies in different flavors. 9 of the candies are strawberries. *What fraction of the candies is strawberry?*  $\frac{9}{23}$

(b) A school gym closet contains 12 balls. 5 of the balls are baseballs. *What fraction of the balls are not baseballs?*  $\frac{7}{12}$

(c) Frida bought 8 new shirts for school. 3 of the shirts cost \$25, 1 shirt cost \$15 and 4 shirts cost \$30.

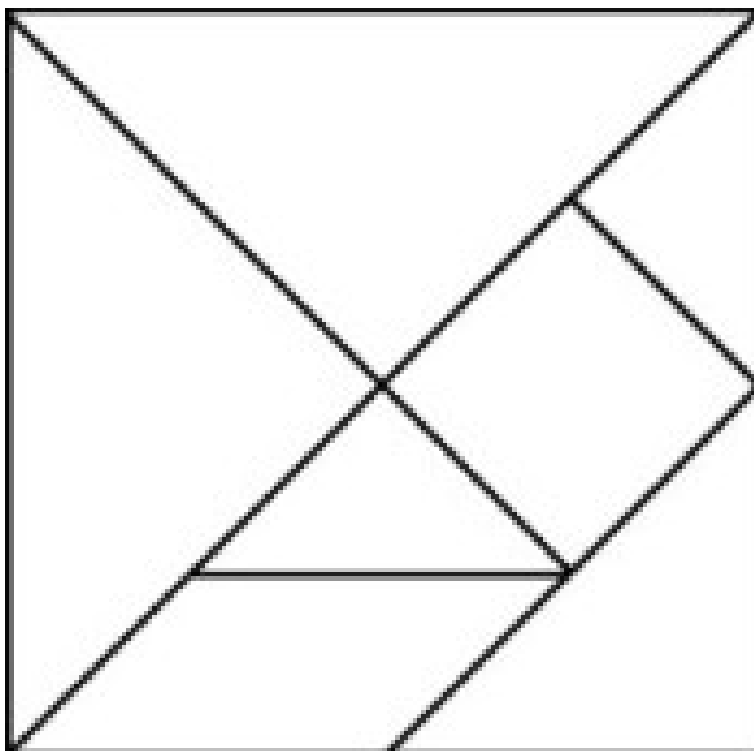
*What fraction of the shirts cost less than \$20?*  $\frac{5}{8}$

*What fraction cost more than \$20?*  $\frac{3}{8}$

13. **Tangrams** are excellent tools that may be used to demonstrate many concepts in fractions, decimals and percents.

This tangram has been made available for you to use for the next series of questions.

*Carefully cut out all of the individual shapes.*

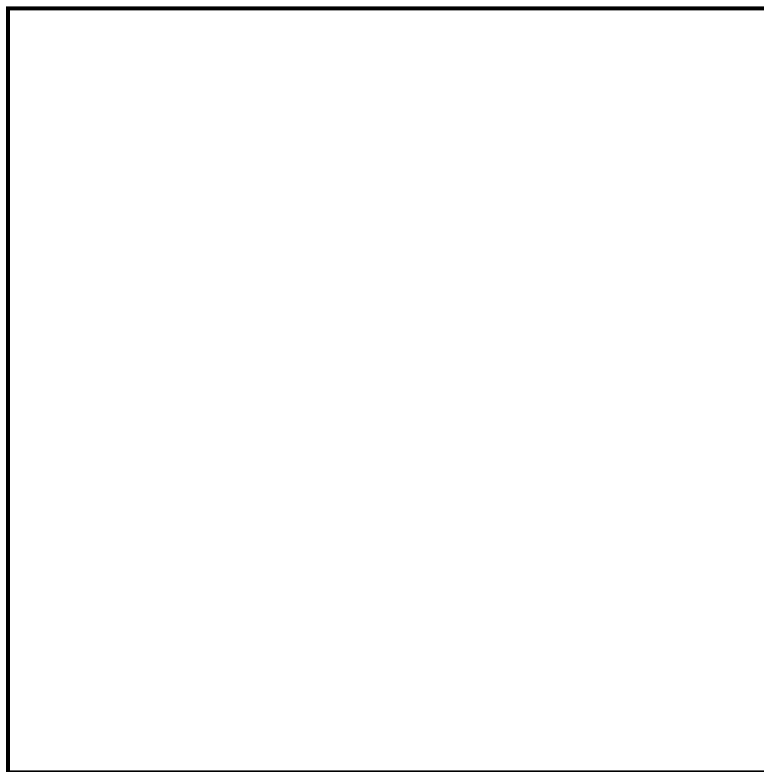




Place all seven of the tangram pieces on this square.

(a) Move the tangram pieces around, compare them, and establish the fractional value of each piece.

(b) Label each fractional piece with its fraction value.



14. Place your tangram pieces back on the above square and answer the following questions.

(a) *What fractional part of the whole tangram are the two large triangles?*  $\frac{1}{2}$

(b) *What fractional part of the whole tangram is one large triangle?*  $\frac{1}{4}$

(c) *What fractional part of a large triangle is the medium triangle?*  $\frac{3}{8}$

(d) *What fractional part of the whole tangram is the medium triangle?*  $\frac{1}{8}$

(e) *What fractional part of the whole tangram is the small triangle?*  $\frac{1}{16}$