

# STUDYING FRACTIONS

STUDENT \_\_\_\_\_

In math, there are **whole** numbers, **rational** numbers, and **irrational** numbers. You're not going to be working with irrational numbers in this packet.

There are three types of rational numbers, fractions, decimals, and percents. You're not going to be working with decimals in this packet either. You're just going to be working with fractions and whole numbers.

A whole number refers to a **whole thing**, like a whole apple or a whole sandwich.

A fraction refers to **part of a whole**, like  $\frac{1}{2}$  of an apple or  $\frac{1}{4}$ th of a sandwich.



1 whole apple



$\frac{1}{2}$  of an apple



1 whole sandwich



$\frac{1}{4}$  of a sandwich

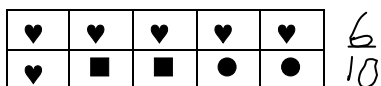
It's easy to spot a fraction because it's made up of two numbers with a line between them, like  $\frac{1}{2}$  or  $\frac{1}{4}$ .

The number on the top of the line is called the **numerator**.

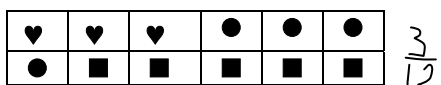
The number under the line is called the **denominator**.

$$\frac{\text{numerator}}{\text{denominator}}$$

**Study the sets of shapes at the left and the fractions written beside them. Explain what these fractions mean.**



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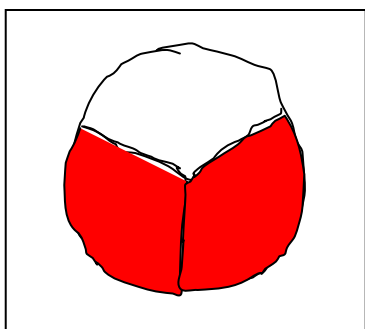
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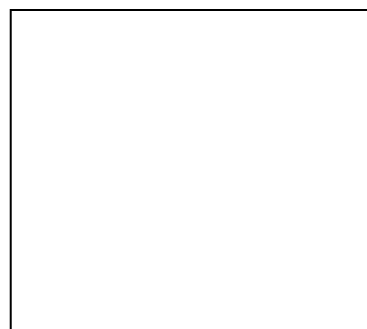
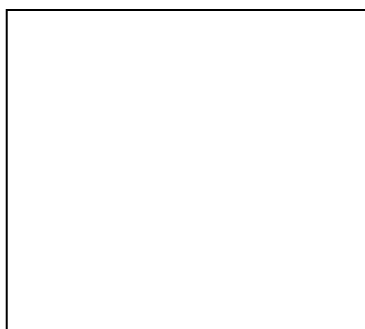
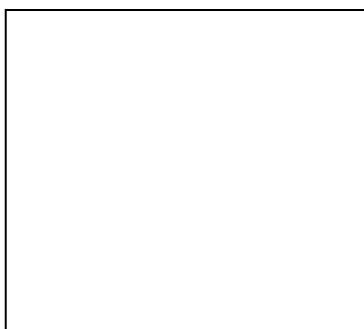
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**Make three fraction drawings below and label your fractions.**

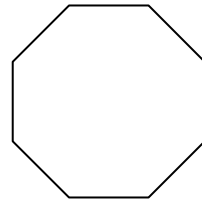
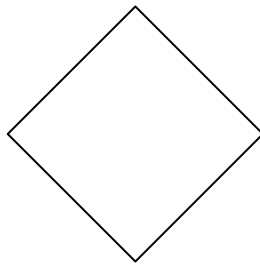
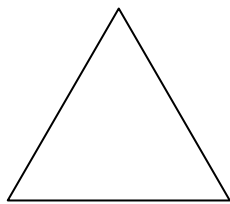
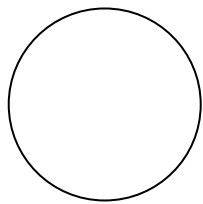
Example:



$\frac{2}{3}$



Evenly partition (divide) these shapes in any way that you want and label the fraction amount.



← On the lines below, explain why the denominator is 10 (for the shapes at the left).

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Here is a group of 10 shapes.  
 What fraction of the group are hearts? \_\_\_\_\_ Circles? \_\_\_\_\_ Diamonds? \_\_\_\_\_

♣	♣	♣	♥	♥	♥	♦	♦	♦	♦	♠	♠
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What fraction of the cards above are clubs? \_\_\_\_\_ Hearts? \_\_\_\_\_ Diamonds? \_\_\_\_\_ Spades? \_\_\_\_\_

If you chose only the clubs and the spades, what fraction of the cards would you have? \_\_\_\_\_

You can write a number sentence to show this combination:  $3/12 + 2/12 = 5/12$

If you chose only the hearts and the clubs, what fraction of the cards would you have? \_\_\_\_\_

Write a number sentence to show this combination. \_\_\_\_\_

If you chose only the hearts and the spades, what fraction of the cards would you have? \_\_\_\_\_

Write a number sentence to show this combination. \_\_\_\_\_

If you chose only the diamonds and the spades, what fraction of the cards would you have? \_\_\_\_\_

Write a number sentence to show this combination. \_\_\_\_\_

If you chose only the clubs and the diamonds, what fraction of the cards would you have? \_\_\_\_\_

Write a number sentence to show this combination. \_\_\_\_\_

If you chose only the hearts and the diamonds, what fraction of the cards would you have? \_\_\_\_\_

Write a number sentence to show this combination. \_\_\_\_\_

## Addition and Subtraction Fraction Problems

QuickTime™ and a  
TIFF (Uncompressed) decoder  
are needed to see this pic

1. Jill ordered a small cheese pizza and cut into 4 pieces of equal size. She ate one piece for lunch and another piece for dinner.

*Make a drawing to help solve the problems. Color the amount that Jill ate red.*



- a) Write a number sentence to show how much pizza Jill ate. \_\_\_\_\_
- b) What fraction amount of pizza did Jill eat? \_\_\_\_\_

For your answer, you might have written  $\frac{2}{4}$  or  $\frac{1}{2}$ .

Both answers are correct because (as you can see from your drawing)  $\frac{2}{4}$ <sup>ths</sup> of the pizza is the same as  $\frac{1}{2}$  of the pizza – they are called equivalent fractions.

***[Quick Definition: When two fractions represent the same quantity, the fractions are considered equivalent]***

2. Dan ordered a regular size round pan pizza and cut it into 6 pieces of equal size. He ate 1 piece for lunch and two for dinner.

*Make a drawing to help solve the problems.*

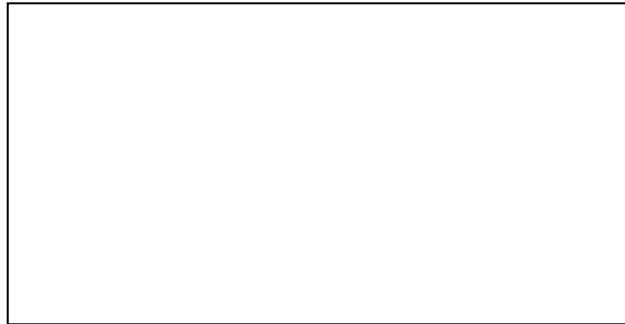


- a) Write a number sentence to show how much pizza Dan ate. \_\_\_\_\_
- b) What fraction amount of the pizza did Dan eat? \_\_\_\_\_

If you wrote  $\frac{3}{6}$  or  $\frac{1}{2}$  you are right because, as you can tell from your drawing,  $\frac{3}{6}$  of the pizza is the same as  $\frac{1}{2}$  of the pizza – they are called \_\_\_\_\_ fractions.

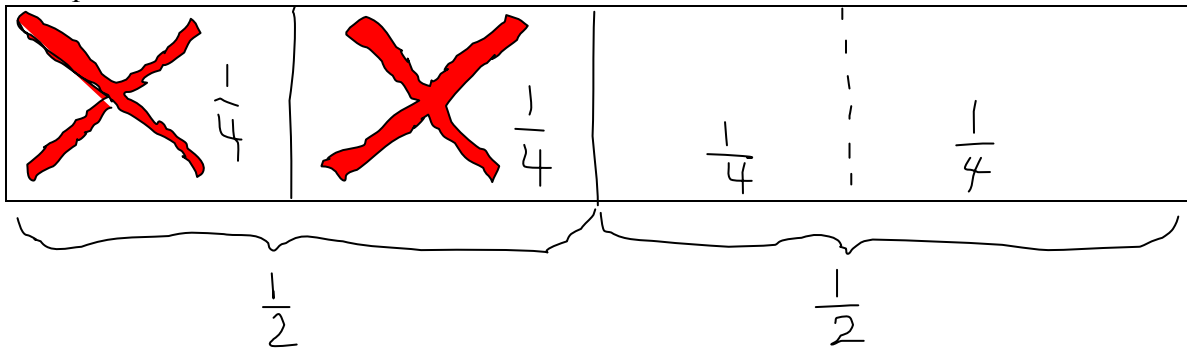
3) Mom cut an apple crisp into six pieces. Dad ate two pieces and the other family members each ate one piece. Ben had been studying fractions at school said, "Dad ate  $\frac{1}{3}$  of the apple crisp." His younger brother, Ted, said, "No he didn't. He ate  $\frac{2}{6}$ ths." Who is right, Dan or Ted? \_\_\_\_\_

*Make a drawing to help solve the problem.*

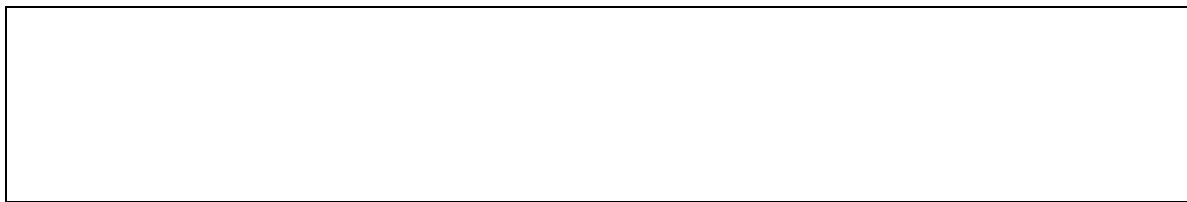


Partition the following shapes to show the equivalent fraction situations.

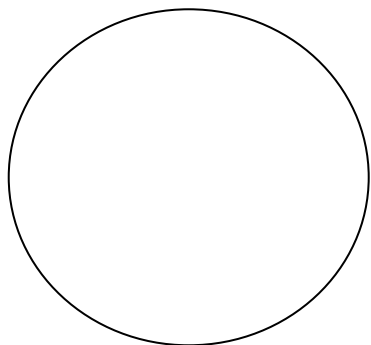
Example  $\frac{2}{4} = \frac{1}{2}$



$\frac{4}{12} = \frac{1}{3}$



$\frac{2}{6} = \frac{1}{3}$



$\frac{4}{16} = \frac{1}{4}$

