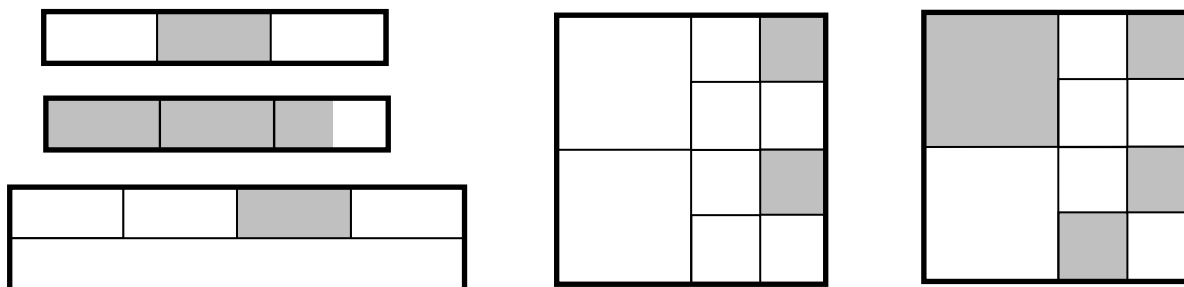# Study Guide: Fractions and Integers

1. Write a fraction to represent the shaded area. The bold line indicates the unit (1).

2. Use fraction bars/towers or rectangles method to write 3 equivalent fractions to each of the following fractions . Your picture should clearly show why these fractions are equivalent.
   a) 1/3   b) 5/6   c) 5/12 etc.

3. Solve the "ribbon problems" (attached at the end of the study guide). Draw pictures representing the problem and clearly explain how these pictures can be used to find the solution.

4. Solve the Cookie Jar problem using at least two different methods of your choice. (The problem is attached at the end of the study guide).

5. Compute each of the following using fraction bars or the "rectangles" method:

$$\frac{3}{4}+\frac{2}{6}=$$ $$1\frac{1}{4}+1\frac{2}{3}=$$ $$\frac{4}{6}-\frac{2}{3}=$$

6. Compute each of the following using fraction bars or the "rectangles" method.

$$\frac{1}{3}\cdot\frac{3}{4}$$ $$\frac{3}{6}\cdot\frac{1}{2}$$ $$\frac{2}{3}\cdot\frac{3}{5}$$

7. Write a word problem representing the following fraction divisions. Compute the answer and briefly explain how it fits your word problem.

$$\frac{3}{4}\div\frac{1}{8}=$$ $$\frac{1}{2}\div\frac{3}{12}=$$ $$3\div\frac{1}{4}=$$

8. Solve the above division problems using the fraction bars.

9. Five bagels are shared equally among 7 people. How many/much of a bagel each person gets? Explain your solution.

10. Using the number line model and black/red tiles model show that:

a) 4 + (-2) =

b) 3 + 2 =

c) -4 – 2 =

d) – 5 + (-3) =

11. Using black and red tiles show that:

a) −3 x 5 =

b) −2 x (−6) =

c) 4 x(−2) =

d) 2 x 3 =

12. Solve the following problems. Explain your answer.

a. 36 ÷ 4 =

b. -36 ÷ 4 =

c. 36 ÷ (-4) =

d. -36 ÷ (-4) =

13. Which of the previous problems can be explained by using manipulatives (black and red tiles)? Make sure you know how to use the manipulatives. Which of the problems cannot be explained by black and red tiles? Explain why.

For more examples and practice problems, see problems in the book (Integers and Fractions sections).

"Ribbon" problems:

Helen has 5 yards of ribbon and she wants to cut it into 10 equal pieces. How long will each strip be in

• yards?

• as a fraction of the whole ribbon?

What if she wants to cut it only into 3 pieces? How long will each strip be in

• yards?

• as a fraction of the whole ribbon?

(anwers: ½ yd, 1/10 of the ribbon; answers: 5/3 yd, 1/3 of the ribbon)

Cookie Jar problem:

There was a jar of cookies on the table. Katie was hungry because she hadn't had breakfast, so she ate half the cookies. Then Myron came along and noticed the cookies. He thought they looked good, so he ate a third of what was left in the jar. Gina came by and decided to take a fourth of the remaining cookies with her to her next class. Then Nancy came dashing up and took a cookie to munch on. When Chelsea looked at the cookie jar, she saw that there were two cookies left. "How many cookies were there in the jar to begin with?" she asked Katie.