

## LESSON

## 79

Finding Equivalent Fractions  
by Multiplying by 1

## WARM-UP

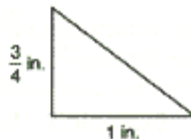
**Facts Practice:** 60 Improper Fractions to Simplify (Test H)

**Mental Math:**

- a. How many centimeters are in one meter? How many meters are in one kilometer? Hold two fingers one centimeter apart. Hold your hands one yard apart.
- b.  $\frac{1}{4}$  of 20      c.  $\frac{1}{4}$  of 200      d.  $\frac{1}{3}$  of 16
- e. 10% of \$5.00      f.  $\sqrt{49}$ ,  $-2$ ,  $\div 2$ ,  $-2$

**Problem Solving:**

Draw a triangle that is similar to this triangle with sides that are twice as long.



## NEW CONCEPT

In Lesson 15 we learned that when a number is multiplied by 1, the value of the number does not change. This property is called the **identity property of multiplication**. We can use this property to find **equivalent fractions**. Equivalent fractions are different names for the same number. For example,  $\frac{1}{2}$ ,  $\frac{2}{4}$ ,  $\frac{3}{6}$ , and  $\frac{4}{8}$  are equivalent fractions. To find equivalent fractions, we multiply a number by different fraction names for 1.

|  |  |  |
|--|--|--|
| $\frac{1}{2} \times \frac{2}{2} = \frac{2}{4}$ | $\frac{1}{2} \times \frac{3}{3} = \frac{3}{6}$ | $\frac{1}{2} \times \frac{4}{4} = \frac{4}{8}$ |
|--|--|--|

As we see above, we can find fractions equivalent to  $\frac{1}{2}$  by multiplying by  $\frac{2}{2}$ ,  $\frac{3}{3}$ , and  $\frac{4}{4}$ . By multiplying  $\frac{1}{2}$  by  $\frac{5}{5}$ ,  $\frac{6}{6}$ ,  $\frac{7}{7}$ , and so on, we find more fractions equivalent to  $\frac{1}{2}$ :

$$\frac{1}{2} \times \frac{n}{n} = \frac{5}{10}, \frac{6}{12}, \frac{7}{14}, \frac{8}{16}, \frac{9}{18}, \frac{10}{20}, \dots$$