

# 5.6 Equivalent Ratios

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## Unit 5: Percent, Ratio, and Rate

Math 8

### 5.6 Equivalent Ratios

Equivalent ratios are very similar to equivalent fractions.

For example, to find an equivalent fraction the numerator and denominator must be multiplied or divided by the same number.

$$\frac{6}{10} = \frac{6 \div 2}{10 \div 2} = \frac{3}{5} \quad \text{or} \quad \frac{6}{10} = \frac{6 \times 2}{10 \times 2} = \frac{12}{20}$$

\*The same can be done to ratios. We must multiply or divide the two or three terms by the same number to make equivalent ratios.

$$4:6 = \frac{4}{2} : \frac{6}{2} = 2:3 \quad \text{or} \quad 4:6 = (4 \times 2) : (6 \times 2) = 8:12$$

To write a ratio in its **simplest form**, we must divide the terms by the Greatest common factor (GCF).

$$24:16 = \frac{24}{8} : \frac{16}{8} = 3:2 \quad \textcircled{1}$$

Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24  
Factors of 16: 1, 2, 4, 8, 16

#### Example

1. Write three **equivalent** ratios for 4:5. Draw a picture to represent each.

$$4:5 = (4 \times 2) : (5 \times 2) = 8:10$$

$$4:5 =$$

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$$4:5 =$$

2. Write 36:6:9 in simplest form.

$$36:6:9 = \frac{36}{3} : \frac{6}{3} : \frac{9}{3}$$

$$\boxed{=12:2:3}$$

Factors of 36: 1, 2, 3, 4, 9, 12, 18, 36

Factors of 6: 1, 2, 3, 6

Factors of 9: 1, 3, 9

Assignment p 274-275 #6-11, 15-17

$$\begin{array}{r|l|l} & \times 2 & \times 3 \\ 4 & 8 & 12 \\ \hline 2 & 4 & 6 \\ & \times 2 & \end{array}$$