Review Exercise Set 13

Exercise 1: Solve for $y$.

\[
\frac{y}{6} = \frac{5}{3}
\]

Exercise 2: Solve.

\[
\frac{2}{x + 1} = \frac{5}{x - 3}
\]

Exercise 3: If a car can travel 48 miles on a single gallon of gas, how many miles can the car travel on 7 gallons?
Exercise 4: The triangles ABC and DEF below are similar. Find the indicated side, AC. Round answers to the nearest tenth.

Exercise 5: The triangles ABC and DEF below are similar. Find the area of triangle ABC. Round answers to the nearest tenth.
Review Exercise Set 13 Answer Key

Exercise 1: Solve for $y$.

$$\frac{y}{6} = \frac{5}{3}$$

$y \times 3 = 6 \times 5$

$3y = 30$

$3y \div 3 = 30 \div 3$

$y = 10$

Exercise 2: Solve.

$$\frac{2}{x+1} = \frac{5}{x-3}$$

$2 \times (x - 3) = (x + 1) \times 5$

$2x - 6 = 5x + 5$

$2x - 2x - 6 = 5x - 2x + 5$

$-6 = 3x + 5$

$-6 - 5 = 3x + 5 - 5$

$-11 = 3x$

$-11 \div 3 = 3x \div 3$

$-\frac{11}{3} = x$

Exercise 3: If a car can travel 48 miles on a single gallon of gas, how many miles can the car travel on 7 gallons?

Let $x =$ miles traveled on 7 gallons

$$\frac{48 \text{ miles}}{1 \text{ gallon}} = \frac{x \text{ miles}}{7 \text{ gallons}}$$

$48 \times 7 = 1 \times x$

$336 = x$

The car could travel 336 miles on 7 gallons of gas.
Exercise 4: The triangles ABC and DEF below are similar. Find the indicated side, AC. Round answers to the nearest tenth.

\[ \frac{x}{16 \text{ in}} = \frac{4 \text{ in}}{10 \text{ in}} \]

\[ x \times 10 = 16 \times 4 \]

\[ 10x = 64 \]

\[ 10x \div 10 = 64 \div 10 \]

\[ x = 6.4 \]

The length of side AC is 6.4 inches.

Exercise 5: The triangles ABC and DEF below are similar. Find the area of triangle ABC. Round answers to the nearest tenth.

First, we need to find the height of triangle ABC.

\[ \frac{x}{9 \text{ m}} = \frac{6 \text{ m}}{15 \text{ m}} \]

\[ x \times 15 = 9 \times 6 \]

\[ 15x = 54 \]

\[ 15x \div 15 = 54 \div 15 \]

\[ x = 3.6 \]
Example 5 (Continued):

Now, we can find the area of triangle ABC.

\[
A = \frac{1}{2}bh
\]

\[
A = \frac{1}{2}(6 \text{ m})(3.6 \text{ m})
\]

\[
A = (3 \text{ m})(3.6 \text{ m})
\]

\[
A = 10.8 \text{ m}^2
\]

The area of triangle ABC is 10.8 square meters.