

Solving Proportion Problems

Name Solutions

1. Decide whether the proportion is true or false and then compare the cross products to verify your answer.

a. $\frac{1}{2} = \frac{2}{4}$ true
 $1 \cdot 4 \stackrel{?}{=} 2 \cdot 2$
 $4 = 4$

b. $\frac{7}{3} = \frac{9}{4}$ false
 $7 \cdot 4 \stackrel{?}{=} 3 \cdot 9$
 $28 \neq 27$

c. $\frac{15}{18} = \frac{10}{12}$ true
 $15 \cdot 12 \stackrel{?}{=} 10 \cdot 18$
 $180 = 180$

2. Solve each proportion:

a. $\frac{7}{14} = \frac{2}{x}$
 $\frac{7x}{7} = \frac{14(2)}{7}$
 $x = 4$

b. $\frac{8}{12} = \frac{x}{15}$
 $\frac{12x}{12} = \frac{8 \cdot 15}{12}$
 $x = 10$

c. $\frac{x}{20} = \frac{5}{8}$
 $8x = 5(20)$
 $\frac{8x}{8} = \frac{100}{8}$
 $x = 12.5$

Set up a proportion to solve the following rate and proportion problems. Write your answer using a complete sentence.

3. Eduardo spent 6 hours completing 21 math problems last week. How long might he expect to spend completing 28 math problems this week?

$\frac{6}{21} = \frac{x}{28}$
 hours
 Problems

$\frac{6}{21} = \frac{x}{28}$
 $\frac{21x}{21} = \frac{6 \cdot 28}{21}$
 $x = 8 \text{ hours}$

Eduardo would spend 8 hours on 28 problems

4. The sales tax on an item that costs \$35 is \$2.10. What is the sales tax on an item that costs \$68?

$$\frac{\text{cost}}{\text{tax}} = \frac{\$35}{\$2.10} = \frac{\$68}{x}$$

$$\frac{35x}{35} = \frac{2.10(68)}{35}$$

$$x = \$4.08$$

The sales tax is \$4.08.

5. On a map, 6 centimeters represents 2 miles. If Cowpoke Junction is 9 centimeters from Wild Bill Butte on the map, how many miles apart are these two locations?

$$\frac{6 \text{ cm}}{2 \text{ mi}} = \frac{9 \text{ cm}}{x \text{ mi}}$$

$$\frac{6x}{6} = \frac{2 \cdot 9}{6}$$

$$x = 3 \text{ miles}$$

They are 3 miles apart.

6. Horse A can travel 40 kilometers in 4 hours. Horse B can travel 63 kilometers in 7 hours. Which horse traveled faster?

	A	B
$\frac{\text{km}}{\text{hr}}$	$\frac{40 \text{ km}}{4 \text{ hrs}}$	$\frac{63 \text{ km}}{7 \text{ hrs}}$

$$10 \text{ km/hr}$$

$$9 \text{ km/hr}$$

Horse A traveled faster.