



Solving Proportions

In the proportion $\frac{a}{b} = \frac{c}{d}$, the products $a \cdot d$ and $b \cdot c$ are called **cross products**. To solve proportions, use the Cross Products Property.

Cross Products Property	
Words The cross products of a proportion are equal.	
Numbers  $2 \cdot 6 = 3 \cdot 4$	Algebra  $ad = bc$, where $b \neq 0$ and $d \neq 0$

Example 1 Solve each proportion.

a. $\frac{x}{6} = \frac{5}{2}$

$x \cdot 2 = 6 \cdot 5$

$2x = 30$

$x = 15$

Cross Products Property

Multiply.

Divide.

▶ The solution is 15.

b. $\frac{8}{y} = \frac{4}{9}$

$8 \cdot 9 = y \cdot 4$

$72 = 4y$

$18 = y$

▶ The solution is 18.

Practice

Check your answers at BigIdeasMath.com.

Solve the proportion.

- | | | | |
|---|--|---|---|
| 1. $\frac{1}{3} = \frac{x}{6}$ 2 | 2. $\frac{2}{5} = \frac{y}{10}$ 4 | 3. $\frac{z}{9} = \frac{2}{3}$ 6 | 4. $\frac{2}{7} = \frac{j}{14}$ 4 |
| 5. $\frac{4}{9} = \frac{k}{36}$ 16 | 6. $\frac{m}{24} = \frac{3}{8}$ 9 | 7. $\frac{11}{3} = \frac{p}{6}$ 22 | 8. $\frac{n}{54} = \frac{8}{3}$ 144 |
| 9. $\frac{14}{a} = \frac{7}{2}$ 4 | 10. $\frac{15}{b} = \frac{3}{5}$ 25 | 11. $\frac{21}{2} = \frac{42}{d}$ 4 | 12. $\frac{9}{16} = \frac{27}{g}$ 48 |
| 13. $\frac{21}{r} = \frac{7}{5}$ 15 | 14. $\frac{25}{q} = \frac{5}{2}$ 10 | 15. $\frac{9}{8} = \frac{36}{s}$ 32 | 16. $\frac{4}{15} = \frac{20}{t}$ 75 |
| 17. $\frac{x}{2.4} = \frac{3.1}{1.2}$ 6.2 | 18. $\frac{4.8}{1.5} = \frac{m}{4.5}$ 14.4 | 19. $\frac{3.3}{y} = \frac{1.1}{1.6}$ 4.8 | 20. $\frac{2.8}{5.4} = \frac{1.4}{c}$ 2.7 |

21. **PENCILS** Thirty-six pencils are packaged in 6 boxes. How many pencils are packaged in 10 boxes? **60**
22. **TICKETS** Two tickets cost \$15. How much does it cost to buy seven tickets? **\$52.50**
23. **SALADS** Three salads cost \$6.50. How much does it cost to buy six salads? **\$13**
24. **FIELD TRIP** There are 108 students on a field trip. The ratio of girls to boys is 5 to 4. How many are girls? **60**