

**Unit 1.5 Solving Proportions**

Solve each proportion.

1)  $\frac{3}{5} = \frac{x}{10}$   $x = 6$

2)  $\frac{4}{7} = \frac{x}{56}$   $x = 32$

3)  $\frac{1}{3} = \frac{x}{5}$   $x = \frac{5}{3}$

4)  $\frac{x}{5} = \frac{3}{10}$   $x = \frac{3}{2}$

5)  $\frac{7}{5} = \frac{x}{4}$   $x = \frac{28}{5}$

6)  $\frac{x}{4} = \frac{4}{3}$   $x = \frac{16}{3}$

7)  $\frac{22}{x} = \frac{-5}{3}$   $x = -\frac{66}{5}$

8)  $\frac{-15}{3} = \frac{5}{t}$   $t = -1$

9)  $\frac{25}{p} = \frac{5}{-4}$   $p = -20$

Solve each proportion using the Cross Products Property.

10)  $\frac{14}{5} = \frac{9}{v}$   $v = \frac{45}{14}$

11)  $\frac{11}{8} = \frac{13}{m}$   $m = \frac{104}{11}$

12)  $\frac{j}{11} = \frac{21}{4}$   $j = \frac{231}{4}$

13)  $\frac{14}{f} = \frac{9}{21}$   $f = \frac{98}{3}$

14)  $\frac{-15}{9} = \frac{-5}{m}$   $m = 3$

15)  $\frac{16}{-5} = \frac{-13}{c}$   $c = \frac{65}{16}$

- 16) Explain in a few sentences how you solved proportions above (either section). In other words, what was the general rule YOU used? There are several of them. I only want the one YOU used.

Answers will vary

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- 17) The doors on a building are proportional to the size of the building. The height of each door is 72 in., and the width is 32 in. If the height of the building is 102 ft, what is the width of the building?

$$\frac{HEIGHT}{WIDTH} = \frac{72 \text{ in}}{32 \text{ in}} = \frac{102 \text{ ft}}{x \text{ ft}} \quad \text{need to change to same units to work out problem.}$$

$$\frac{HEIGHT}{WIDTH} = \frac{6 \text{ ft}}{2\frac{2}{3} \text{ ft}} = \frac{102 \text{ ft}}{x \text{ ft}} \quad \text{divide 72 by 12 to get 6 ft and divide 32 by 12 to get } 2\frac{2}{3} \text{ ft .}$$

$$X = 45\frac{1}{3} \text{ ft}$$

Or

$$\frac{HEIGHT}{WIDTH} = \frac{72 \text{ in}}{32 \text{ in}} = \frac{1224 \text{ in}}{x \text{ in}} \quad \text{multiple 102 by 12 to get 1224 in.}$$

$$X = 544 \text{ in, then divide by 12 to get } X = 45\frac{1}{3} \text{ ft}$$

- 18) Janis is planning to bake approximately 256 cookies. If 3 pounds of cookie dough make 96 cookies, how many pounds of cookie dough should he make?

$$\frac{\# \text{ OF COOKIES}}{\text{POUNDS OF DOUGH}} = \frac{256 \text{ cookies}}{x \text{ POUNDS OF DOUGH}} = \frac{96 \text{ cookies}}{3 \text{ POUNDS OF DOUGH}}$$

$$X = 8 \text{ POUNDS OF DOUGH}$$

- 19) Sixty students, out of 100 surveyed, chose chicken nuggets as their favorite lunch item. If the school has 1360 students, how many students would likely say that chicken nuggets is their favorite if the survey is a fair representation of the student body?

$$\frac{LIKE CHICKEN NUGGETS}{TOTAL PEOPLE} = \frac{60 \text{ LIKE CHICKEN NUGGETS}}{100 \text{ TOTAL SURVEYED}} = \frac{x \text{ LIKE CHICKEN NUGGETS}}{1360 \text{ TOTAL STUDENTS}}$$

$X = 816$  students is a fair representation of how many students would like chicken nuggets.

Solve the following. Round to two decimal places.

$$20) \frac{5}{9} = \frac{n}{n-6} \quad n = -7.50 \quad 21) \frac{10}{k-5} = \frac{5}{k} \quad k = -5.00 \quad 22) \frac{6}{w-7} = \frac{4}{w+6} \quad w = -32.00$$

$$23) \frac{x-4}{x} = \frac{9}{8} \quad x = -32.00 \quad 24) \frac{p+10}{p+5} = \frac{6}{7} \quad p = -40.00 \quad 25) \frac{23}{15} = \frac{p+10}{p-17} \quad p = 67.63$$