

**7-1 Practice**  
Ratios and Proportions

Form G

Write the ratio of the first measurement to the second measurement.

1 ft = 12 in  
1 lb = 16 oz

1. diameter of a salad plate: 8 in.

$$\frac{8}{12} = \frac{2}{3}$$

diameter of a dinner plate: 1 ft  
12 in

2. weight of a cupcake: 2 oz  
2 oz

weight of a cake: 2 lb 2 oz  
34 oz

$$\frac{2}{34} = \frac{1}{17}$$

3. garden container width: 2 ft 6 in  
30 in

garden container length: 8 ft  
96 in

$$\frac{30}{96} = \frac{5}{16}$$

4. width of a canoe: 28 in.  
28 in

length of a canoe: 12 ft 6 in.  
150 in

$$\frac{28}{150} = \frac{14}{75}$$

5. height of a book: 11 in.  
11 in

height of a bookshelf: 3 ft 3 in.  
39 in

$$\frac{11}{39}$$

6. The perimeter of a rectangle is 280 cm. The ratio of the width to the length is 3 : 4. What is the length of the rectangle?

$$\frac{280 \times 3}{4} = 210 \text{ cm}$$

7. The ratio of country albums to jazz albums in a music collection is 2 : 3. If the music collection has 45 albums, how many are country albums?

$$\frac{45 \times 2}{3} = 30 \text{ albums}$$

8. The lengths of the sides of a triangle are in the extended ratio 3 : 6 : 8. The triangle's perimeter is 510 cm. What are the lengths of the sides?

3 : 6 : 8  
3 : 8

$$\frac{510 \times 3}{6} = 255 \text{ cm}$$

$$\frac{510 \times 6}{8} = 382.5 \text{ cm}$$

$$\frac{510 \times 8}{8} = 510 \text{ cm}$$

Algebra Solve each proportion.

9.  $\frac{x}{4} = \frac{13}{52}$   $x = 1$

10.  $\frac{x}{2x+1} = \frac{16}{40}$   $x = 2$

11.  $\frac{9}{10} = \frac{9x}{70}$   $x = 7$

12.  $\frac{2}{7} = \frac{b+1}{56}$   
 $b = \frac{105}{7}$

13.  $\frac{11}{y} = \frac{9}{27}$   $y = 33$

14.  $\frac{3}{34} = \frac{m}{51}$   $m = 45$

Use the proportion  $\frac{x}{z} = \frac{6}{5}$ . Complete each statement. Justify your answer.

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

16.  $\frac{x+z}{z} = \frac{6+5}{5} = \frac{11}{5}$

17.  $\frac{z}{x} = \frac{5}{6}$

18.  $5x = 6z$

19. The measures of two consecutive angles in a parallelogram are in the ratio 4 : 11. What are the measures of the four angles of the parallelogram?

Solving Proportions

Name: Key Date: \_\_\_\_\_ Hour: \_\_\_\_\_

1)  ~~$\frac{3}{10} = \frac{a}{a+2}$~~

$10a = 3a + 6$

$\frac{7a}{7} = \frac{6}{7}$

$a = \frac{6}{7}$

3)  ~~$\frac{v-5}{v+6} = \frac{4}{9}$~~

$9v - 45 = 4v + 24$

$\frac{5v}{5} = \frac{69}{5}$

$v = \frac{69}{5}$

5)  ~~$\frac{x+5}{5} = \frac{6}{x-2}$~~

$(x+5)(x-2) = 30$

$x^2 - 2x + 5x - 10 = 30$

$x^2 + 3x - 10 = 30$   
 $-30 \quad -30$

7)  ~~$\frac{3}{x+4} = \frac{x+2}{5}$~~

$x^2 + 3x - 40 = 0$

$15 = x^2 + 4x + 2x + 8$

~~$\frac{8}{3} \times -5$~~

$x^2 + 6x - 7 = 0$

$(x+8)(x-5) = 0$

$x = -7 \quad x = 1$

$x = -8$

$x = 5$

9)  ~~$\frac{7}{x-1} = \frac{4}{x-6}$~~

$7x - 42 = 4x - 4$

$\frac{3x}{3} = \frac{38}{3}$

$x = \frac{38}{3}$

2)  ~~$\frac{x+1}{9} = \frac{x+2}{2}$~~

$2x + 2 = 9x + 18$

$-\frac{16}{7} = \frac{7x}{7}$

$x = -\frac{16}{7}$

4)  ~~$\frac{n+8}{10} = \frac{n-9}{4}$~~

$4n + 32 = 10n - 90$

$-\frac{6n}{-6} = \frac{-122}{-6}$

$n = \frac{61}{3}$

6)  ~~$\frac{4}{x-3} = \frac{x+5}{5}$~~

$20 = x^2 + 5x - 3x - 15$

$20 = x^2 + 2x - 15$

$x^2 + 2x - 35 = 0$

~~$\frac{7}{2} \times -5$~~

$x = -7 \quad x = 5$

8)  ~~$\frac{x-5}{4} = \frac{-3}{x+3}$~~

$x^2 - 5x + 3x - 15 = -12$

$x^2 - 2x - 3 = 0$

$x = 3 \quad x = -1$

~~$\frac{-3}{-2} \times 1$~~

10)  ~~$\frac{k+5}{k-6} = \frac{8}{5}$~~

$5k + 25 = 8k - 40$

$-\frac{3k}{-3} = \frac{-65}{-3}$

$k = \frac{65}{3}$