Name: _____ Period: _____ Date: _____

RATIOS AND PROPORTIONS Assignment

Simplify the ratios in each case and write as $a:b$.

1. $\frac{13\ in.}{52\ in.}$

2. $\frac{7\ ft.}{35\ ft.}$

3. $\frac{7\ days}{2\ weeks}$

4. $\frac{14\ kg.}{21\ kg.}$

Write a ratio expressing the slope of the line through each pair of points.

5. $(-3,-5)$ *and* $(-4,20)$

6. $(-3,7)$ *and* $(6,5)$

7. $(-4,15)$ *and* $(0,5)$

8. $(2,-7)$ *and* $(1,-3)$

Solve each proportion.

9. $\frac{x}{9}=\frac{8}{6}$

10. $\frac{35}{14}=\frac{50}{x-5}$

11. $\frac{x+2}{3}=\frac{12}{8}$

12. $\frac{x}{3}=\frac{12}{x}$

13. $\frac{5x}{36}=\frac{125}{x}$

14. $\frac{x-3}{2}=\frac{8}{x+3}$

15. $\frac{1}{2}=\frac{x}{4}$

16. $\frac{x+7}{60}=\frac{4}{15}$

17. $\frac{16}{x}=\frac{x}{4}$

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RATIOS AND PROPORTIONS Assignment

18. The ratio of the side lengths of a triangle is $\mathbf{3}:\mathbf{4}:\mathbf{5}$, and its perimeter is $\mathbf{72}\ \boldsymbol{cm}$. What is the length of the **longest** side of the triangle?

19. The ratio of the side lengths of an kite is $\mathbf{4}:\mathbf{4}:\mathbf{11}:\mathbf{11}$ and its perimeter is $\mathbf{120}\ \boldsymbol{m}$. What is the side lengths the kite?

20. The ratio of the angle measure in a isosceles trapezoid is $\mathbf{5}:\mathbf{5}:\mathbf{7}:\mathbf{7}$. What is the measure of the largest angles?

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RATIOS AND PROPORTIONS Assignment

ANSWERS

Simplify the ratios in each case and write as $a:b$.

1. $\frac{13\ in.}{52\ in.} = \frac{1}{4}$

   $1:4$

2. $\frac{7\ ft.}{35\ ft.} = \frac{1}{5}$

   $1:5$

3. $\frac{7\ days}{2\ weeks}\left(\frac{1\ week}{7\ days}\right) = \frac{1}{2}$

   $1:2$

4. $\frac{14\ kg.}{21\ kg.} = \frac{2}{3}$

   $2:3$

Write a ratio expressing the slope of the line through each pair of points.

5. $(-3,-5)$ *and* $(-4,20)$

   $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{20-(-5)}{-4-(-3)} = \frac{20+5}{-4+3} = \frac{25}{-1}$

   $m = -25$

6. $(-3,7)$ *and* $(6,5)$

   $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5-7}{6-(-3)} = \frac{-2}{6+3} = \frac{-2}{9}$

   $m = -\frac{2}{9}$

7. $(-4,15)$ *and* $(0,5)$

   $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5-15}{0-(-4)} = \frac{-10}{0+4} = \frac{-10}{4}$

   $m = -\frac{5}{2}$

8. $(2,-7)$ *and* $(1,-3)$

   $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-3-(-7)}{1-2} = \frac{-3+7}{-1} = \frac{4}{-1}$

   $m = -4$

Solve each proportion.

9. $\frac{x}{9} = \frac{8}{6}$

   $6x = 9(8)$

   $6x = 72$

   $\frac{6x}{6} = \frac{72}{6}$

   $x = 12$

10. $\frac{35}{14} = \frac{50}{x-5}$

    $35(x-5) = 14(50)$

    $35x - 175 = 700$

    $35x - 175 + 175 = 700 + 175$

    $35x = 875$

    $\frac{35x}{35} = \frac{875}{35}$

    $x = 25$

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RATIOS AND PROPORTIONS Assignment

11. $\frac{x+2}{3}=\frac{12}{8}$

$8(x+2)=3(12)$

$8x+16=36$

$8x+16-16=36-16$

$8x=20$

$\frac{8x}{8}=\frac{20}{8}$

$x=\frac{5}{2}$

12. $\frac{x}{3}=\frac{12}{x}$

$x^2=12(3)$

$x^2=36$

$x=\pm 6$

13. $\frac{5x}{36}=\frac{125}{x}$

$5x^2=125(36)$

$5x^2=4500$

$\frac{5x^2}{5}=\frac{4500}{5}$

$x^2=900$

$x=\pm 30$

14. $\frac{x-3}{2}=\frac{8}{x+3}$

$(x-3)(x+3)=8(2)$

$x^2-9=16$

$x^2-9+9=16+9$

$x^2=25$

$x=\pm 5$

15. $\frac{1}{2}=\frac{x}{4}$

$1(4)=2x$

$\frac{4}{2}=\frac{2x}{2}$

$2=x$

16. $\frac{x+7}{60}=\frac{4}{15}$

$15(x+7)=4(60)$

$15x+105=240$

$15x+105-105=240-105$

$15x=135$

$\frac{15x}{15}=\frac{135}{15}$

$x=9$

17. $\frac{16}{x}=\frac{x}{4}$

$16(4)=x^2$

$64=x^2$

$\pm 8=x$

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RATIOS AND PROPORTIONS Assignment

18. The ratio of the side lengths of a triangle is $3:4:5$, and its perimeter is $72\ cm$. What is the length of the **longest** side of the triangle?

$$3:4:5 \quad \rightarrow \quad 3x:4x:5x$$

$P = 72\ cm$

$P = 3x + 4x + 5x = 12x$

$72\ cm = 12x$

$\frac{72\ cm}{12} = \frac{12x}{12}$

$6\ cm = x$

$longest\ side = 5x = 5(6\ cm) = 30\ cm$

19. The ratio of the side lengths of an kite is $4:4:11:11$ and its perimeter is $120\ m$. What is the side lengths the kite?

$$4:4:11:11 \quad \rightarrow \quad 4x:4x:11x:11x$$

$P = 120\ m$

$P = 4x + 4x + 11x + 11x = 30x$

$120\ m = 30x$

$\frac{120\ m}{30} = \frac{30x}{30}$

$4\ m = x$

$4x = 4(4\ m) = 4x = 16\ m$

$11x = 11(4\ m) = 11x = 44\ m$

$$4:4:11:11 \quad \rightarrow \quad 16\ m:16\ m:44\ m:44\ m$$

20. The ratio of the angle measure in a isosceles trapezoid is $5:5:7:7$. What is the measure of the largest angles?

$$5:5:7:7 \quad \rightarrow \quad 5x:5x:7x:7x$$

$\Sigma\ interior\ \angle\ of\ quadrilateral = 360°$

$\Sigma\ interior\ \angle\ of\ quadrilateral = 5x + 5x + 7x + 7x = 24x$

$360° = 24x$

$\frac{360°}{24} = \frac{24x}{24}$

$15° = x$

$7x = 7(15°) = 7x = 105°$