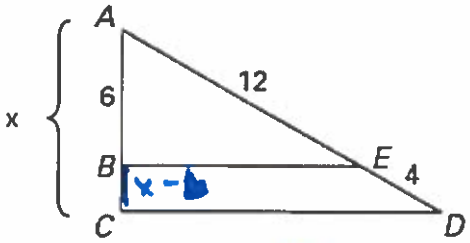
Worksheet 6.1 – 6.3: Solving Ratios and Proportions

Use the diagram and the given information to find the unknown length.

1. Given $\frac{AB}{BC} = \frac{AE}{ED}$, find BC.



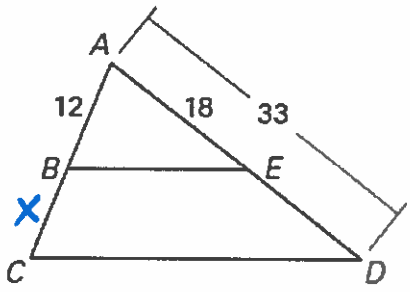
$\frac{6}{x-6} \cdot \frac{12}{4} \frac{3}{1}$

$3(x-6) = 6$

$3x - 18 = 6$

$3x = 24 \rightarrow x = 8$

2. Given $\frac{AB}{BC} = \frac{AE}{ED}$, find BC.

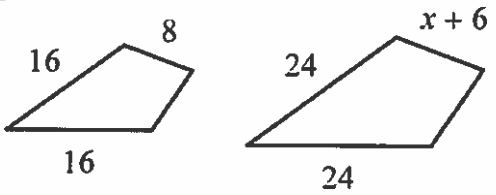


$\frac{12}{x} = \frac{18}{15} \frac{6}{5}$

$6x = 60$

$x = 10$

3. Solve for x using the given similar polygons.



$\frac{2}{3} \frac{16}{24} = \frac{8}{x+6}$

$2(x+6) = 24$

$2x + 12 = 24$

$2x = 12$

$x = 6$

Mexican Pesos In November, 2005, the exchange rate of Mexican pesos to U.S. dollars was 10.77 to 1. While on vacation, you paid 205 pesos for a sombrero at a gift shop.

PESOS / $

4. What was the price of the sombrero in U.S. dollars?

$\frac{10.77 \text{ p}}{\$1} = \frac{205 \text{ p}}{\$x} \rightarrow 10.77x = 205$

$x = \$19.03$

5. If the exchange rate were 9.24 Mexican pesos to 1 U.S. dollar, what would have been the cost in U.S. dollars?

$\frac{9.24 \text{ p}}{\$1} = \frac{205 \text{ p}}{\$x} \rightarrow 9.24x = 205$

$x = \$22.19$

6. The ratio of the measures of the sides of a triangle is 3:5:7, and its perimeter is 450 centimeters. Find the measures of each side of the triangle.

$3x + 5x + 7x = 450 \text{ cm}$

$15x = 450$

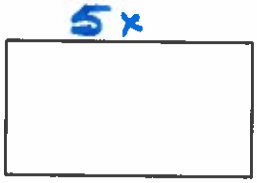
$x = 30$

$3(30) = 90 \text{ cm}$

$5(30) = 150 \text{ cm}$

$7(30) = 210 \text{ cm}$

7. The perimeter of a rectangular table is 21 feet and the ratio of its length to its width is 5: 2. Find the length and width of the table. $l = 5x$ $w = 2x$



$P = 2(5x + 2x) = 21$

$2(7x) = 21$

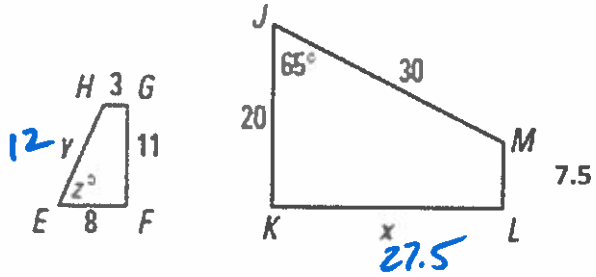
$14x = 21$

$x = \frac{21}{14} = \frac{3}{2} = 1.5$

$l = 5(1.5) = 7.5$ ft

$w = 2(1.5) = 3$ ft

8. In the diagram, JKLM ~ EFGH.



A. Find the scale factor of JKLM to EFGH.

$\frac{JKLM}{EFGH} : \frac{JK}{EF} = \frac{20}{8} = \frac{5}{2}$

B. Find the values of x, y, and z.

$\frac{30}{y} = \frac{5}{2}$

$5y = 60$

$y = 12$

$\frac{x}{11} = \frac{5}{2}$

$2x = 55$

$x = 27.5$

$z = 65$

C. Find the perimeter of JKLM 85 and EFGH 34.

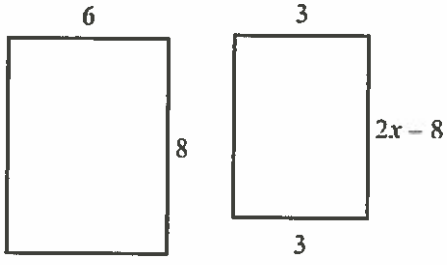
$20 + 30 + 7.5 + 27.5$

$12 + 8 + 11 + 3$

D. Find the ratio of the perimeter of JKLM to EFGH. $\frac{85}{34} = \frac{5}{2}$

E. Find the ratio of the perimeter of EFGH to JKLM. $\frac{2}{5}$

9. Solve for x using the similar polygons.



$\frac{16}{12} = \frac{8}{2x-8}$

$8 = 2(2x - 8)$

$8 = 4x - 16$

$24 = 4x$

$x = 6$