Mathematics 10D

7.1 – Similar Triangles

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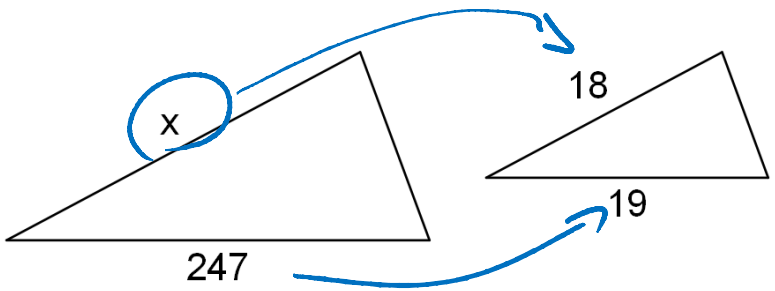
Similar triangles are triangles which have the exact same angle measures. The triangles are then related by a scale factor which states how much bigger (or smaller) the second triangle is. Through proportions, you can solve for the side lengths.



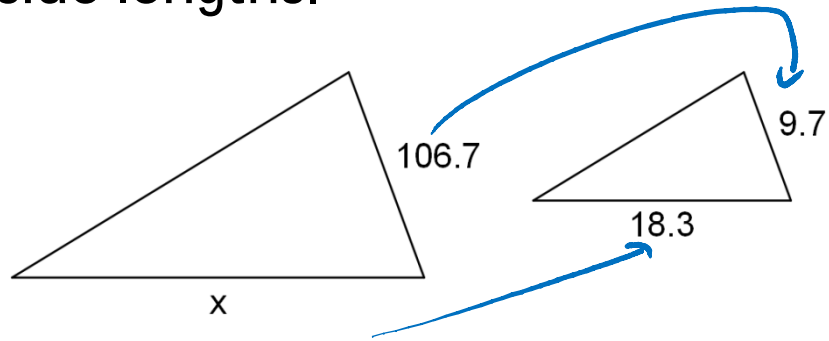
$\frac{x}{247} = \frac{18}{19}$

$x = \frac{(18)(247)}{19}$

$x = 234$

$\frac{247}{19} = 13$

Scale Factor



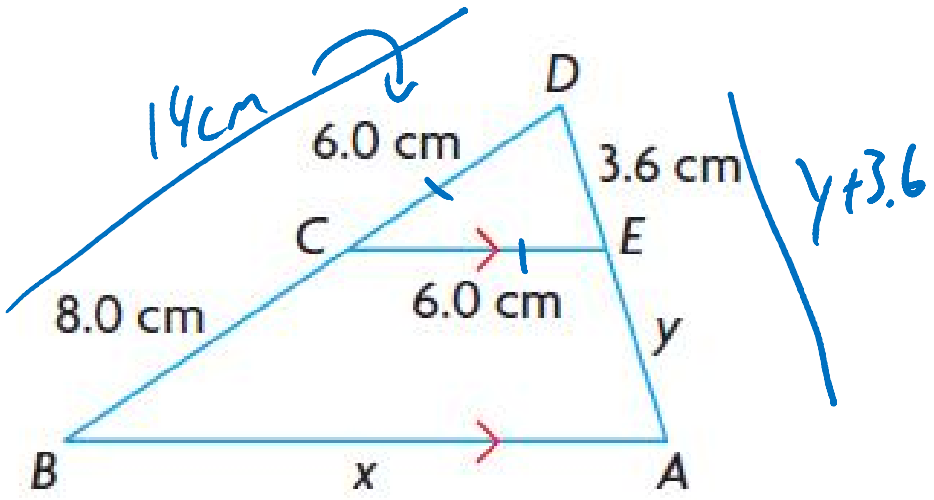
$\frac{x}{18.3} = \frac{106.7}{9.7}$

$x = \frac{(18.3)(106.7)}{9.7}$

$x = 201.3$

Scale factor of 11.

Solve for *x* and *y*.



$y+3.6$

$\frac{y+3.6}{3.6} = \frac{14}{6}$

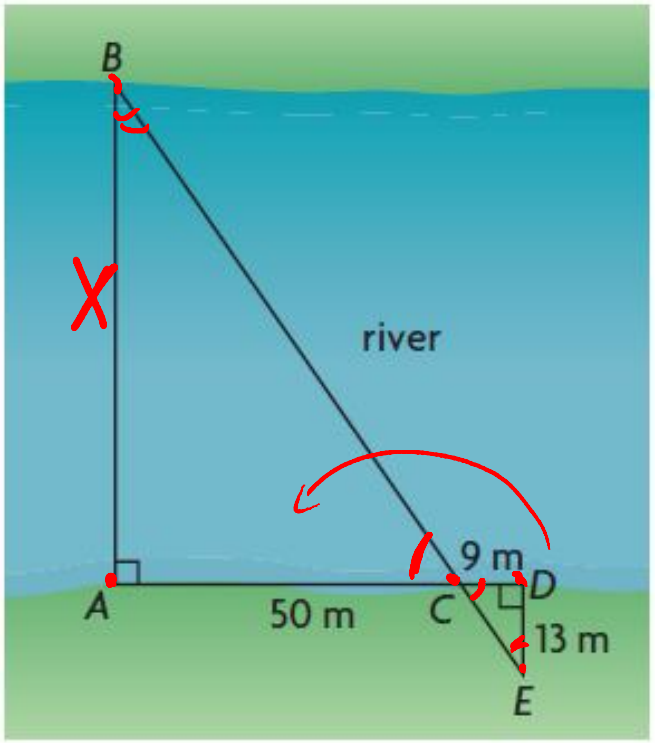
$y + 3.6 = 8.4$ (−3.6 −3.6)

$y = 4.8$ cm

$\frac{x}{6} = \frac{14}{6}$

$x = 14$

A new bridge is going to be built across a river, but the width of the river cannot be measured directly. Surveyors set up posts at points A, B, C, D, and E. Then they took measurements relative to the posts.

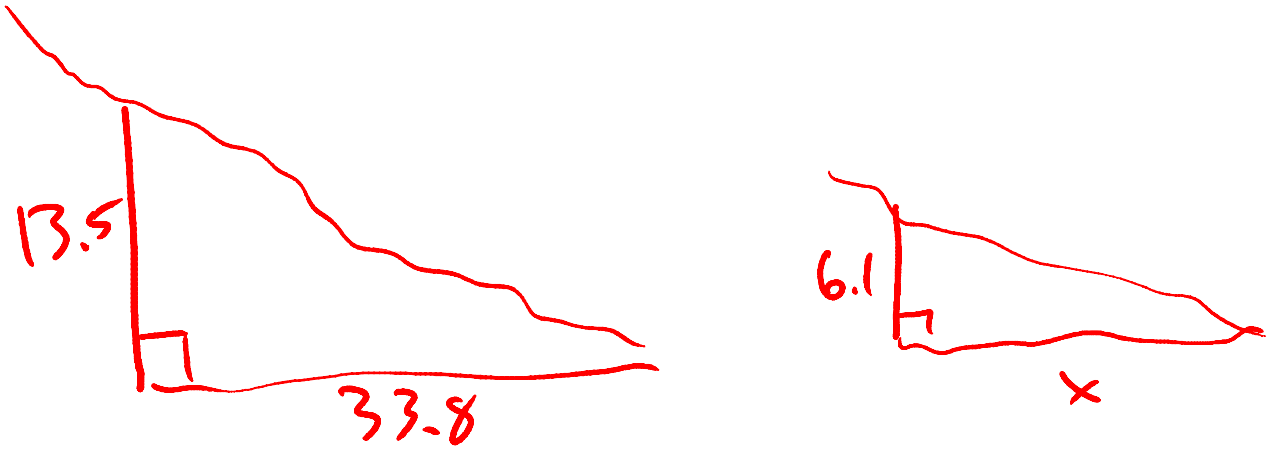


$$\frac{x}{50} = \frac{13}{9}$$

$$x = \frac{(50)(13)}{9}$$

$$x = 72.\bar{2}\text{ m}$$

If a 13.5 ft tall adult giraffe casts a 33.8 ft long shadow, then how long is the shadow that a 6.1 ft tall woman casts?



$$\frac{x}{33.8} = \frac{6.1}{13.5}$$

$$x = 15.3 \text{ ft}$$