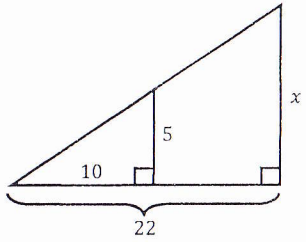
NOTES 8.2: INDIRECT MEASUREMENT

Objective: I can use similar polygons to solve problems involving indirect measurement.

SIMILAR POLYGONS: Polygons that have the same shape but different size.

Similar triangles can be used in ***INDIRECT MEASUREMENT***.

EXAMPLE 1: Find the value of 'x'.

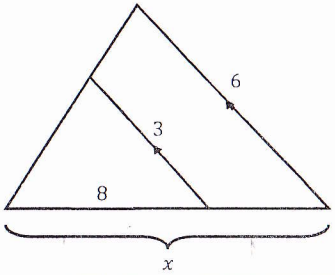


$\frac{5}{10} = \frac{x}{22}$

$10x = 110$

$x = 11$

EXAMPLE 2: Find the value of 'x'.

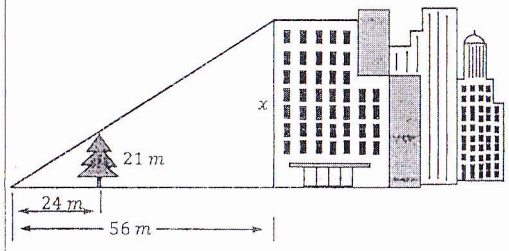


$\frac{3}{8} = \frac{6}{x}$

$3x = 48$

$x = 16$

EXAMPLE 3: Solve for 'x'.



$\frac{21}{24} = \frac{x}{56}$

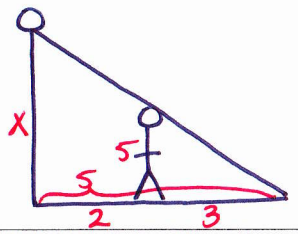
$24x = 1176$

$x = 49$

49 m

Draw a Picture!

EXAMPLE 4: When Stephanie stands 2 feet from a lamp post, her shadow is 3 feet long. If Stephanie is 5 feet tall, how tall is the lamp post?



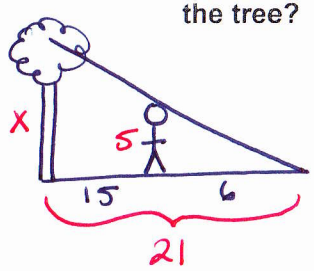
$\frac{5}{3} = \frac{x}{5}$

$3x = 25$

$x = \frac{25}{3}$

$\frac{25}{3}$ ft $= 8\frac{1}{3}$ ft

EXAMPLE 5: Charlie walks away from a tree along its shadow until his head is in line with the top of the tree's shadow. Charlie is standing 15 feet from the base of the tree and 6 feet from the end of the shadow. Charlie is 5 feet tall. What is the height of the tree?



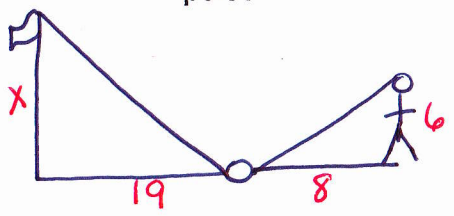
$\frac{5}{6} = \frac{x}{21}$

$6x = 105$

$x = \frac{35}{2}$

$\frac{35}{2}$ ft $= 17\frac{1}{2}$ ft

EXAMPLE 6: A mirror is on the ground 8 ft from Ricky and 19 ft from a flag pole. Ricky can see the top of the pole in the mirror. If Ricky is 6 ft tall, how tall is the flag pole?



$\frac{6}{8} = \frac{x}{19}$

$8x = 114$

$x = \frac{57}{4}$

$\frac{57}{4}$ ft $= 14\frac{1}{4}$ ft.