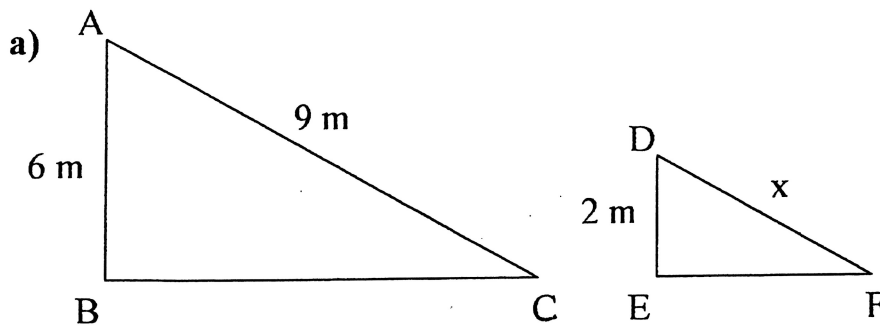


## Similar Triangles Practice: Part 4

1. Determine the length  $x$  in each diagram.



Given  $\triangle ABC \sim \triangle DEF$

Since  $\triangle ABC \sim \triangle DEF$

then  $AB:BC:CA = DE:EF:FD$

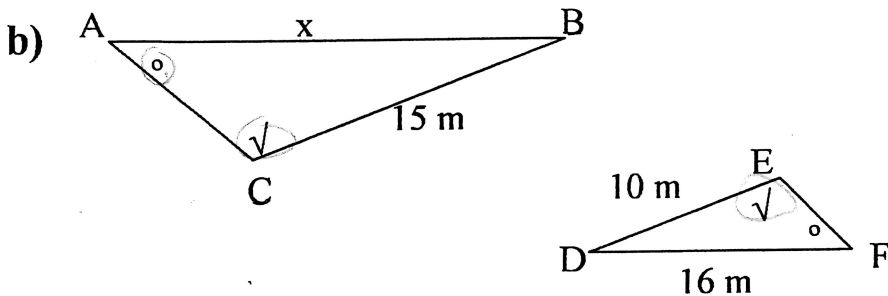
$$6:BC:9 = 2:EF:x$$

$$\frac{6}{2} = \frac{BC}{EF} = \frac{9}{x}$$

$$\frac{6}{2} = \frac{9}{x}$$

$$\frac{6x}{6} = \frac{18}{6}$$

$x = 3m$



Since  $\angle ACB = \angle FED$  ( $\nabla$ )

$\angle BAC = \angle DFE$  ( $\circ$ )

then  $\triangle ABC \sim \triangle FDE$  (AA $\sim$ )

Since  $\triangle ABC \sim \triangle FDE$

then  $AB:BC:CA = FD:DE:EF$

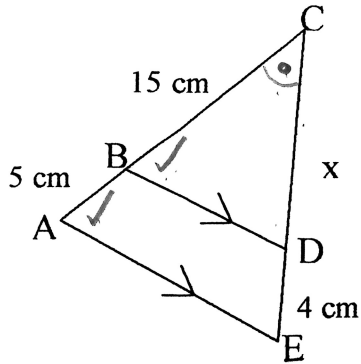
$$x:15:CA = 16:10:EF$$

$$\frac{x}{16} = \frac{15}{10} = \frac{CA}{EF}$$

$$\frac{10x}{10} = \frac{240}{10}$$

$x = 24m$

c)



Since  $\angle ACE = \angle BCD$  (common)

$\angle EAC = \angle DBC$  (ALT-F)

then  $\triangle ACE \sim \triangle BCD$  (AA~)

Since  $\triangle ACE \sim \triangle BCD$

then  $AC : CE : EA = BC : CD : DB$

$$20 : x+4 : EA = 15 : x : DB$$

$$\frac{20}{15} = \frac{x+4}{x} = \frac{EA}{DB}$$

$$20x = 15(x+4)$$

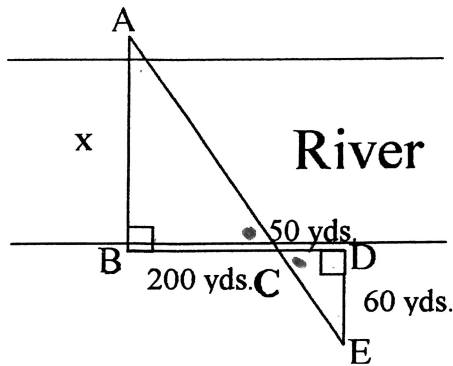
$$20x = 15x + 60$$

$$20x - 15x = 60$$

$$\frac{5x}{5} = \frac{60}{5}$$

$$x = 12 \text{ cm}$$

2. Determine the distance across the river.



Since  $\angle ABC = \angle EDC$  ( $90^\circ$ )

$\angle ACB = \angle DCE$  (OAT)

then  $\triangle ABC \sim \triangle EDC$  (AA~)

Since  $\triangle ABC \sim \triangle EDC$

then  $AB : BC : CA = ED : DC : CE$

$$x : 200 : CA = 60 : 50 : CE$$

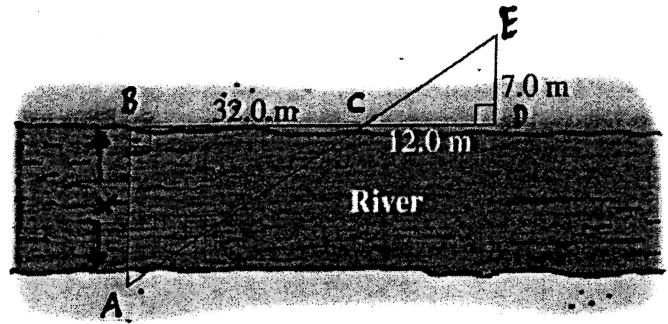
$$\frac{x}{60} = \frac{200}{50} = \frac{CA}{CE}$$

$$\frac{50x}{50} = \frac{12000}{50}$$

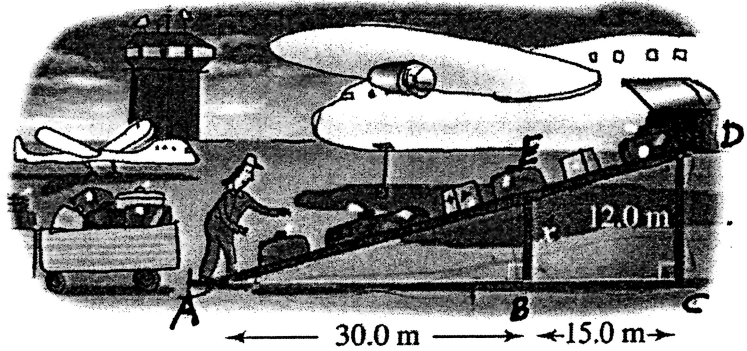
$$x = 240 \text{ yds.}$$

## Practice

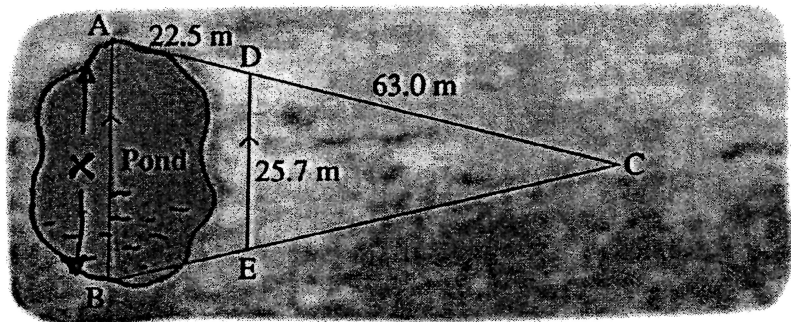
1. How far is it across the river?



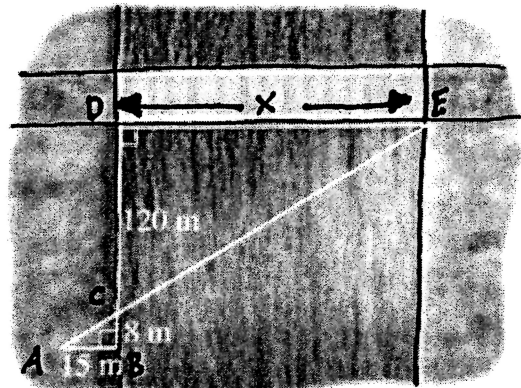
2. How high is the support  $x$  for the conveyor? The diagram is not drawn to scale.



3. To find the distance AB across a pond, surveyors measured the distances shown. Use these distances to calculate the distance AB.



4. A student drew this diagram to determine the length of a bridge over a river. Calculate the length of the bridge.



Answers: 1) 18.7 m 2) 8 m 3) 34.9 m 4) 225 m