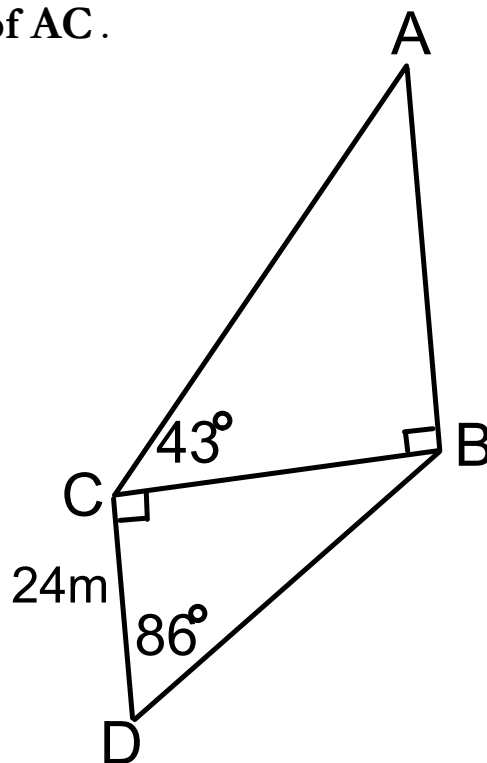


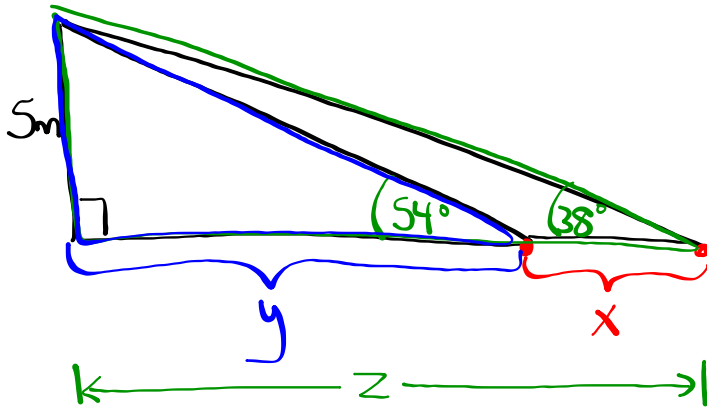
Warm Up Questions

1. From his line of sight 5m high, a life guard sees two people in distress. The angles of depression to the individuals are 54 and 38 degrees respectively. What is the distance between the two people in distress?

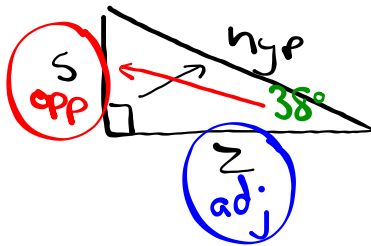
2. Find the length of AC.



1. From his line of sight 5m high, a life guard sees two people in distress. The angles of depression ^{elevation} to the individuals are 54 and 38 degrees respectively. What is the distance between the two people in distress?



(i) Find z:



$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

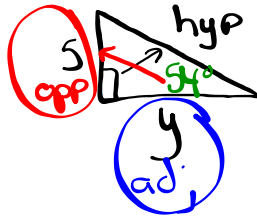
$$\tan 38^\circ = \frac{5}{z}$$

$$z \cdot 0.7813 = \frac{5}{z} \cdot z$$

$$\frac{0.7813z}{0.7813} = \frac{5}{0.7813}$$

$$\underline{\underline{z = 6.4m}}$$

(ii) Find y:



$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\tan 54^\circ = \frac{5}{y}$$

$$y \cdot 1.3764 = \frac{5}{y} \cdot y$$

$$\frac{1.3764y}{1.3764} = \frac{5}{1.3764}$$

$$\underline{\underline{y = 3.6m}}$$

(iii) Find x:

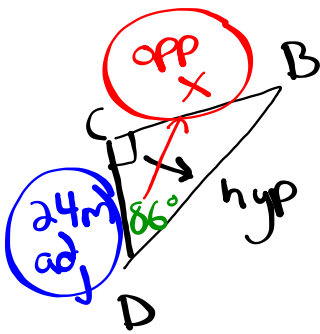
$$x = z - y$$

$$x = 6.4 - 3.6$$

$$\boxed{x = 2.8m}$$

2. Find the length of AC.

(i) Find CB or x :

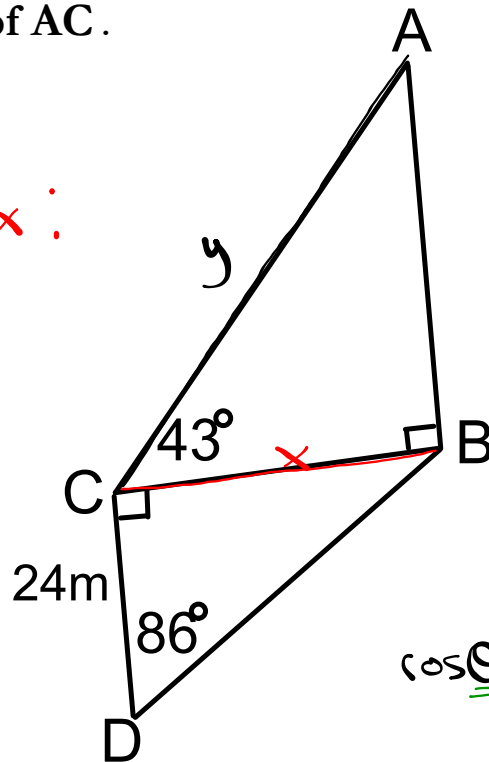


$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

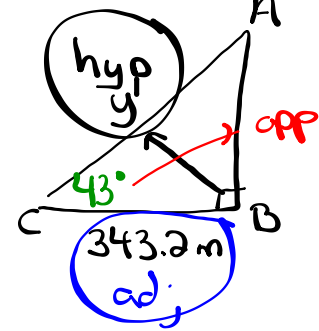
$$\tan 86^\circ = \frac{x}{24}$$

$$24 \cdot 14.3007 = \frac{x}{24} \cdot 24$$

$$\underline{\underline{343.2\text{m} = x}}$$



(iii) Find AC or y



$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\cos 43^\circ = \frac{343.2}{y}$$

$$y \cdot 0.7314 = \frac{343.2}{y} \cdot y$$

$$\frac{0.7314 y}{0.7314} = \frac{343.2}{0.7314}$$

$$\boxed{y = 469.2\text{m}}$$

∴ AC is 469.2 m long

Homework