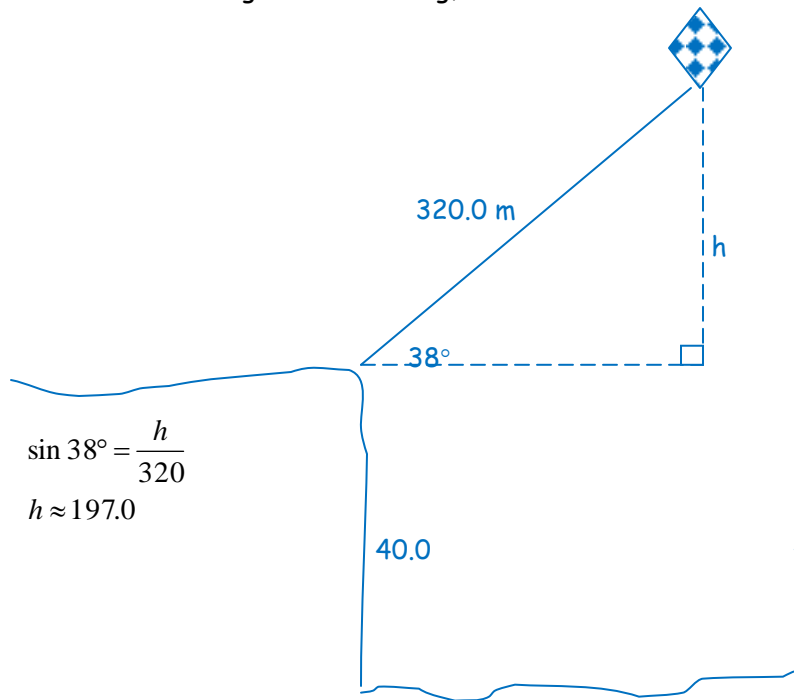


Ex. 1 Jon is standing on a 40 m high seaside cliff flying a kite. The angle of depression of the kite string is 38° . If the kite string is 320.0 m long, how far above the water is the kite?



$$\sin 38^\circ = \frac{h}{320}$$

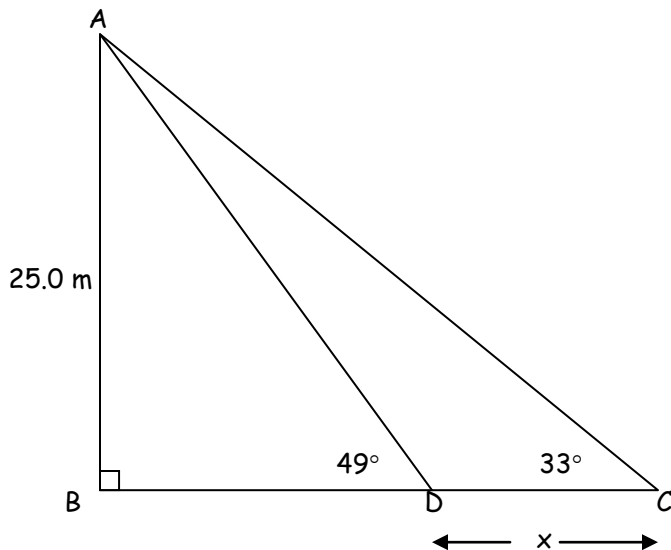
$$h \approx 197.0$$

$$\text{Height of kite} \approx 40 + 197.0$$

$$\approx 237.0$$

\therefore the kite is 237.0 m above the water.

Ex. 2 Find the value of x .



$$\text{In } \triangle ABC, \quad \tan 33^\circ = \frac{25.0}{BC}$$

$$BC \approx 38.5$$

$$\text{In } \triangle ABD, \quad \tan 49^\circ = \frac{25.0}{BD}$$

$$BD \approx 21.7$$

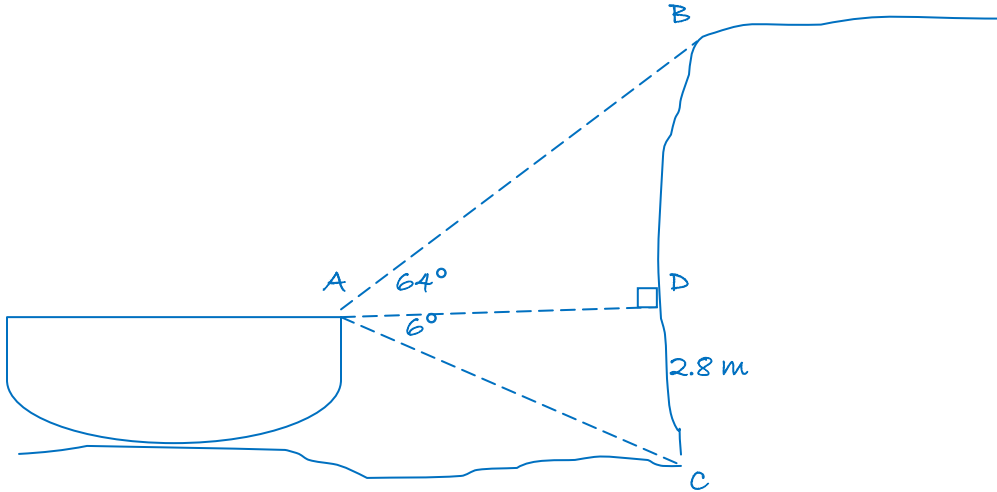
$$x = BC - BD$$

$$= 38.5 - 21.7$$

$$= 16.8$$

$\therefore x$ is 16.8 m.

Ex. 3 From the bridge of The Maid of the Mist on the Niagara River, the angle of elevation to the top of Niagara Falls is 64° . The angle of depression to the bottom of the falls is 6° . If the bridge of the boat is 2.8 m above the water, calculate the height of the falls, correct to one decimal place.



$$\tan 6^\circ = \frac{2.8}{AD}$$

$$AD \approx 26.6$$

$$\tan 64^\circ = \frac{BD}{26.6}$$

$$BD \approx 54.5$$

height of the falls $\approx 2.8 + 54.5$
 ≈ 57.3

\therefore the height of the falls is 57.3 m.

Ex. 4 Find the value of h, correct to one decimal place.

$$\tan 70^\circ = h/y \quad \tan 50^\circ = h/x$$

$$y = h/\tan 70^\circ \quad x = h/\tan 50^\circ$$

$$h/\tan 70^\circ + h/\tan 50^\circ = 50$$

$$h(1/\tan 70^\circ + 1/\tan 50^\circ) = 50$$

$$h \approx 41.6$$

