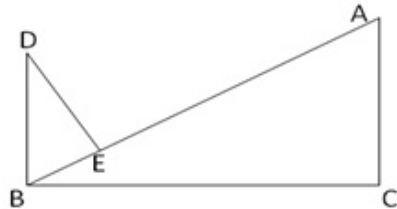




#### Exercise 4B

Question 11:



In the given figure:  $DB \perp AB$ ,  $AC \perp BC$  and  $DB \parallel AC$

$$\therefore \angle DBC = \angle ACB$$

$AB$  is the transversal

$$\therefore \angle DBE = \angle BAC \text{ [Alternate } \angle\text{s]}$$

In  $\triangle BDE$  and  $\triangle ABC$

$$\angle DEB = \angle ACB = 90^\circ$$

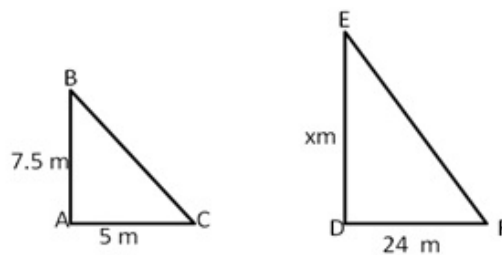
$$\angle DBE = \angle BAC$$

$\triangle BDE \sim \triangle ABC$  [By AA similarity]

$$\Rightarrow \frac{BE}{DE} = \frac{AC}{BC}$$

Hence proved.

Question 12:



Let  $AB$  be the vertical stick and let  $AC$  be its shadow.

Then,  $AB = 7.5 \text{ m}$  and  $AC = 5 \text{ m}$

Let  $DE$  be the vertical tower and let  $DF$  be its shadow

Then,  $DF = 24 \text{ m}$ , Let  $DE = x \text{ meters}$

Now, in  $\triangle BAC$  and  $\triangle EDF$ ,

$\triangle BAC \sim \triangle EDF$  by SAS criterion

$$\Rightarrow \frac{AB}{DE} = \frac{AC}{DF} \Rightarrow \frac{7.5}{x} = \frac{5}{24}$$

$$\Rightarrow x = \frac{7.5 \times 24}{5} = 36 \text{ m}$$

Therefore, height of the vertical tower is  $36 \text{ m}$ .

\*\*\*\*\* END \*\*\*\*\*

