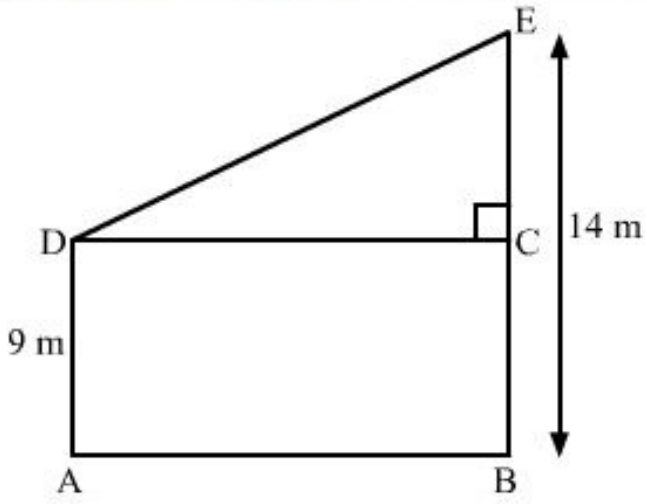
Triangles Ex 4.7 Q8

Answer :

Let us draw the diagram from the given information.



As we are given that distance between their feet is 12 m

$\therefore DC = 12$.

Now we get a right angled triangle DCE.

Let us applying the Pythagoras theorem we get,

$DE^2 = DC^2 + EC^2$

Substituting the values we get,

$DE^2 = 12^2 + 5^2$

$DE^2 = 144 + 25$

$\therefore DE^2 = 169$

Let us take the square root we get,

$\therefore DE = 13$

Therefore, distance between their top is $\boxed{13\text{ m}}$.

Triangles Ex 4.7 Q9

Answer :

In ΔABC and ΔDBA,

$\angle A = \angle D$ (90° each)

$\angle B = \angle B$ (Common)

Therefore, by AA-criterion for similarity, we have $\Delta ABC \sim \Delta DBA$.

$$\therefore \frac{AB}{BD} = \frac{BC}{BA} = \frac{AC}{AD}$$

Now we will substitute the values of AC and AB

$$\therefore \frac{c}{BD} = \frac{BC}{c} = \frac{b}{AD}$$

We are finding the value of AD therefore; we will use the following ratios,

$$\frac{BC}{c} = \frac{b}{AD}$$

Now we will multiple both sides of the equation by $\frac{1}{b}$.

$$\frac{BC}{c} \times \frac{1}{b} = \frac{b}{AD} \times \frac{1}{b}$$

We will simplify the above equation as below,

$$AD = \frac{bc}{BC} \quad \text{.....(1)}$$

But we know that $BC = \sqrt{b^2 + c^2}$ substituting the value of BC in equation (1) we get,

$$AD = \frac{bc}{\sqrt{b^2 + c^2}}$$

Therefore, the value of AD in terms of *b* and *c* is $\boxed{\frac{bc}{\sqrt{b^2 + c^2}}}$.

********** END **********