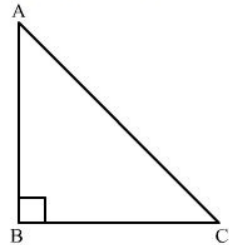




### Triangles Ex 4.7 Q26

**Answer :**

We will draw the figure from the given information as below,



Let AB be the vertical pole of length 18 m and let the stake be at the point C so the wire will be taut. Therefore, we have  $AB = 18 \text{ m}$ ,  $AC = 24 \text{ m}$  and we have to find BC.

Now we will use Pythagoras theorem,

$$AC^2 = AB^2 + BC^2$$

Let us substitute the values we get,

$$24^2 = 18^2 + BC^2$$

$$576 = 324 + BC^2$$

Subtracting 324 from both sides of the equation we get,

$$BC^2 = 576 - 324$$

$$BC^2 = 252$$

We can rewrite the 252 as  $36 \times 7$ , therefore, our equation becomes,

$$BC^2 = 36 \times 7$$

Now we will take the square root,

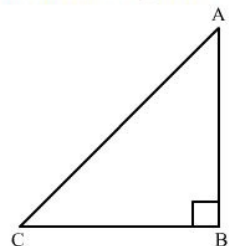
$$BC = 6 \times \sqrt{7}$$

Therefore, the stake should be  $6\sqrt{7} \text{ m}$  far from the base of the pole so that the wire will be taut.

### Triangles Ex 4.7 Q27

**Answer :**

Let us draw the figure first.



An aeroplane which flies due north at a speed of 1000 km/hr covers the distance AB after  $1\frac{1}{2}$  hr and

another aeroplane that flies due west at the speed of 1200 km/hr covers the distance BC after  $1\frac{1}{2}$  hr.

We know that  $\text{speed} = \frac{\text{distance}}{\text{time}}$

$\therefore \text{distance} = \text{speed} \times \text{time}$

Let us calculate AB first as shown below,

$$AB = 1000 \times 1.5$$

$$\therefore AB = 1500 \text{ km}$$

Similarly we can calculate BC.

$$BC = 1200 \times 1.5$$

$$\therefore BC = 1800 \text{ km}$$

Now we have find AC. To find AC we will use Pythagoras theorem,

$$AC^2 = AB^2 + BC^2$$

$$\therefore AC^2 = (1500)^2 + (1800)^2$$

$$\therefore AC^2 = 2250000 + 3240000$$

$$\therefore AC^2 = 5490000$$

Taking square root we get,

$$AC = 2343.07$$

Therefore, after  $1\frac{1}{2}$  hrs the aeroplanes will be approximately 2343 km far apart.

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