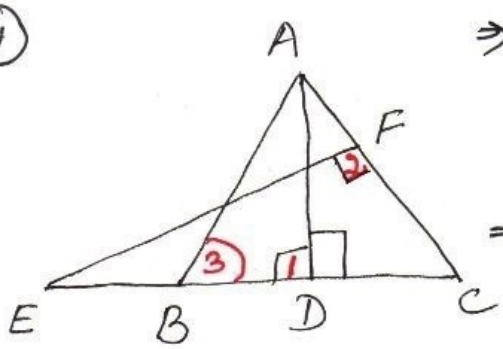
(11)



$\Rightarrow \frac{AB}{PQ} = \frac{BC}{QR}$

$\frac{6}{x} = \frac{4}{28}$ 7

$\Rightarrow x = 42$

∴ height of tower = 42 m

to prove $\triangle ABD \sim \triangle ECF$

proof In $\triangle ABC$

$AB = AC$ (given)

$\angle C = \angle 3$ (isosceles $\triangle$ prop.)

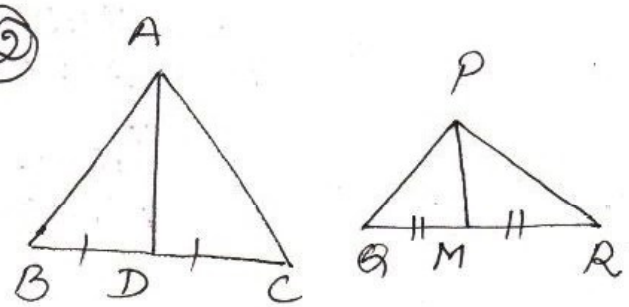
In $\triangle ABD$ and $\triangle ECF$

$\angle 1 = \angle 2 = 90^\circ$

$\angle 3 = \angle C$ (proved)

∴ $\triangle ABD \sim \triangle ECF$ by AA Cor.

(12)



to prove $\triangle ABC \sim \triangle PQR$

proof

$\frac{AB}{PQ} = \frac{AD}{PM} = \frac{BC}{QR}$ (given)

$\Rightarrow \frac{AB}{PQ} = \frac{AD}{PM} = \frac{2BD}{2QM}$ [∵ D is midpt of BC, M is midpt. of QR]

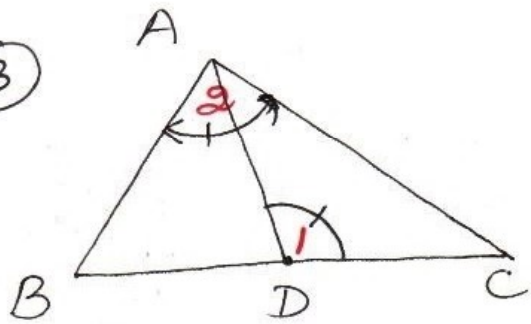
∴ $\triangle ABD \sim \triangle PQM$ by SSS prop.

In $\triangle ABC$ and $\triangle PQR$

$\frac{AB}{PQ} = \frac{BC}{QR}$, $\angle B = \angle Q$

∴ $\triangle ABC \sim \triangle PQR$ by SAS Similarity

(13)



To prove $CA^2 = CB \cdot CD$

proof $\angle C = \angle C$

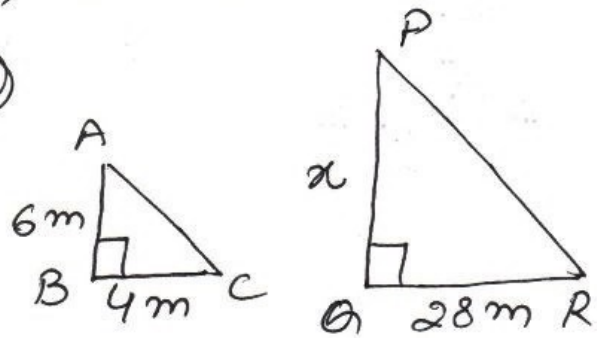
$\angle 1 = \angle 2$ (given)

∴ $\triangle ADC \sim \triangle BAC$ by AA Cor.

$\Rightarrow \frac{CA}{CB} = \frac{CD}{CA}$

$\Rightarrow CA^2 = CB \cdot CD$

(15)



$\angle B = \angle Q = 90^\circ$

$\angle C = \angle R$ (angle of elevation of Sun at same time and place)

∴ $\triangle ABC \sim \triangle PQR$ by AA Sim