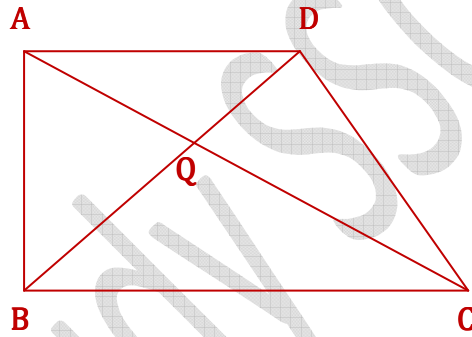


HOT PROBLEMS

(Problems for developing Higher Order Thinking Skill)

Textual

1. In $\square ABCD$, side $BC \parallel$ side AD . Side AC and side BD intersect in point Q . If $AQ = \frac{1}{3} AC$ then show that $DQ = \frac{1}{2} BQ$.



2. Draw a triangle ABC with side $BC = 6$ cm, $\angle B = 45^\circ$ and $\angle A = 100^\circ$, then construct triangle whose sides are $\frac{4}{7}$ times the corresponding sides of $\triangle ABC$.

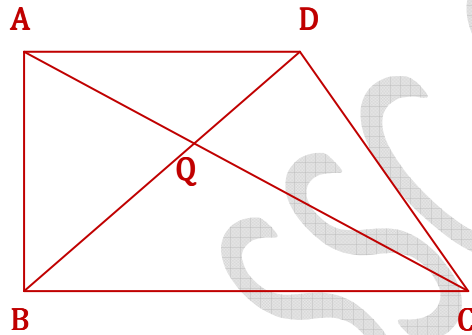
HOT PROBLEMS

(Problems for developing Higher Order Thinking Skill)

Solutions

1. In $\square ABCD$, side $BC \parallel$ side AD . Side AC and side BD intersect in point Q . If

$$AQ = \frac{1}{3} AC. \text{ then show that } DQ = \frac{1}{2} BQ.$$



Solution :

Given : In $\square ABCD$,

side $BC \parallel$ side AD , $AQ = \frac{1}{3} AC$. [Note : Correct AB to AD]

Show : $DQ = \frac{1}{2} BQ$.

In $\square ABCD$

$$BC \parallel AD \quad \text{--- (Given)}$$

$$\therefore \angle DAC = \angle ACB \quad \text{--- (1)(alternate } \angle\text{s)}$$

In $\triangle AQD$ and $\triangle BQC$,

$$\angle DAQ = \angle QCB \quad \text{--- [From (1)]}$$

$$\angle AQD = \angle BQC \quad \text{--- (Vertically opp. } \angle\text{s.)}$$

$$\therefore \triangle AQD \sim \triangle BQC \quad \text{--- (A-A-test of } \sim \Delta\text{s)}$$

$$\therefore \frac{AQ}{QC} = \frac{DQ}{BQ} \quad \text{--- (2)(c.s.s.t)}$$

$$AQ = \frac{1}{3} AC$$

$$3AQ = AC$$

$$\therefore 3AQ = AQ + QC \quad \text{--- (A-Q-C)}$$

$$\therefore 3AQ - AQ = QC$$

$$\therefore 2AQ = QC$$

$$\therefore \frac{AQ}{QC} = \frac{1}{2} \quad \text{--- (3)}$$

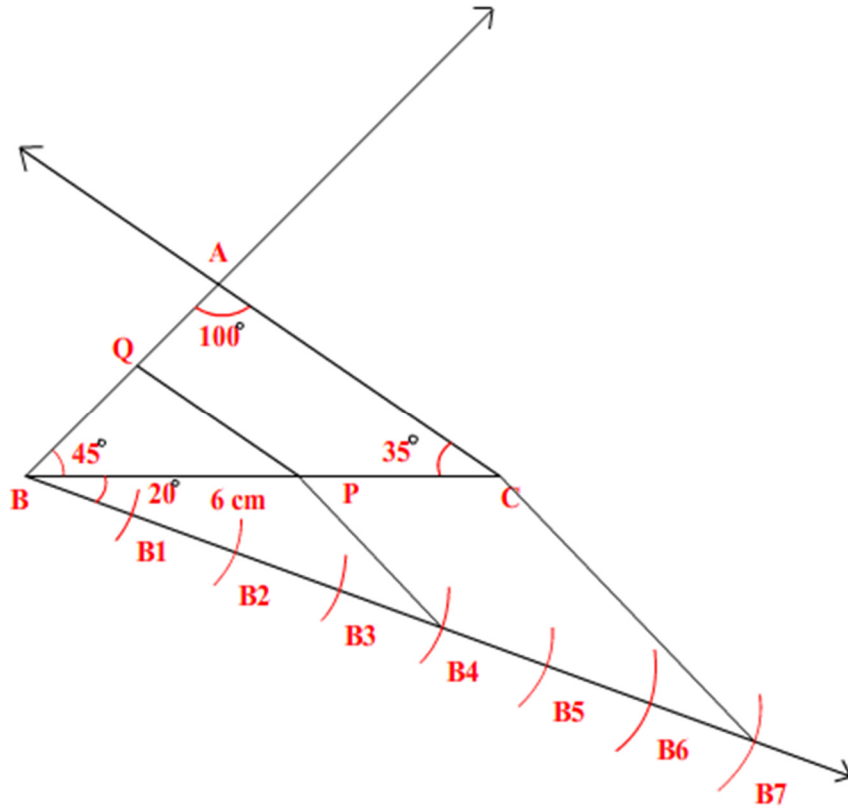
$$\therefore \frac{DQ}{BQ} = \frac{1}{2} \quad \text{--- [From (2) and (3)]}$$

$$\therefore DQ = \frac{1}{2} BQ$$

2. Draw a triangle ABC with side BC = 6 cm, $\angle B = 45^\circ$ and $\angle A = 100^\circ$, then construct a triangle whose sides are $\frac{4}{7}$ times the corresponding sides of $\triangle ABC$.

Solution :

PLEASE VIEW THE ANIMATION FILE THE SOLUTION



StudyS