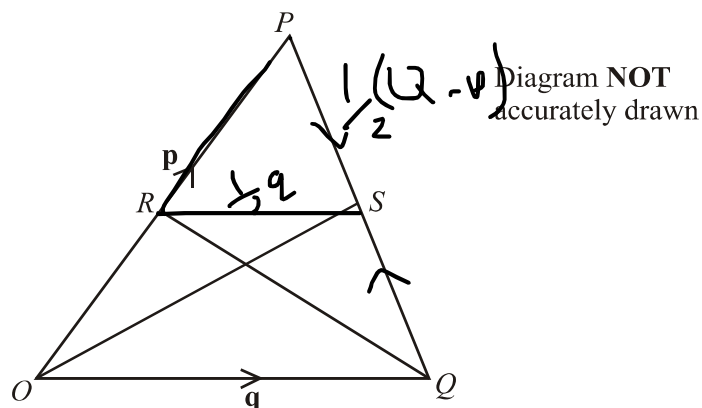


6.



OPQ is a triangle.

R is the midpoint of OP .

S is the midpoint of PQ .

$\vec{OP} = p$ and $\vec{OQ} = q$

(i) Find \vec{OS} in terms of p and q .

$$\vec{PQ} = -p + q \quad \vec{OS} = p + \frac{1}{2}(-p + q) = \frac{1}{2}q + \frac{1}{2}p$$

(ii) Show that RS is parallel to OQ .

$$\begin{aligned} \vec{RP} &= \frac{1}{2}p \\ \vec{RS} &= \frac{1}{2}p + -\frac{1}{2}p + \frac{1}{2}q \\ \vec{RS} &= \frac{1}{2}q \\ \vec{OQ} &= q \end{aligned}$$

$$\vec{RS} = \frac{1}{2}q$$

$$\vec{OQ} = q$$

$$2\vec{RS} = \vec{OQ}$$

(5 marks)