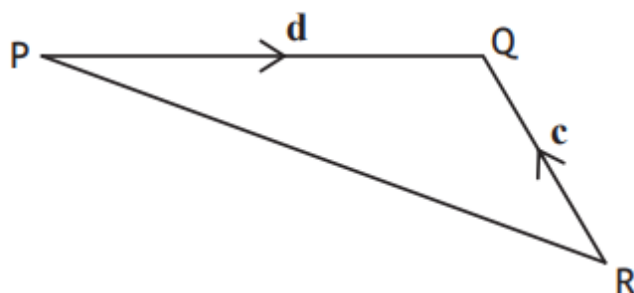




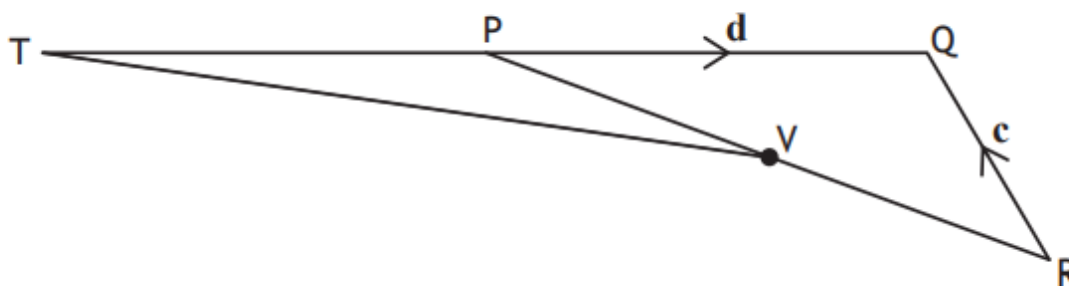
In the diagram below,  $\vec{RQ}$  and  $\vec{PQ}$  represent the vectors  $\mathbf{c}$  and  $\mathbf{d}$  respectively.



(a) Express  $\vec{PR}$  in terms of  $\mathbf{c}$  and  $\mathbf{d}$ .

1

The line QP is extended to T.



- $TP = PQ$
- $V$  is the midpoint of  $PR$

(b) Express  $\vec{TV}$  in terms of  $\mathbf{c}$  and  $\mathbf{d}$ .

Give your answer in simplest form.

2

Answers:

(a)  $\underline{\mathbf{d}} - \underline{\mathbf{c}}$  (or equivalent)

(b)  $\frac{3}{2}\underline{\mathbf{d}} - \frac{1}{2}\underline{\mathbf{c}}$  (or equivalent)