

2. Relative to a fixed origin, points  $P$ ,  $Q$  and  $R$  have position vectors  $\mathbf{p}$ ,  $\mathbf{q}$  and  $\mathbf{r}$  respectively.

Given that

- $P$ ,  $Q$  and  $R$  lie on a straight line
- $Q$  lies one third of the way from  $P$  to  $R$

show that

$$\mathbf{q} = \frac{1}{3}(\mathbf{r} + 2\mathbf{p})$$

(3)