

30th January

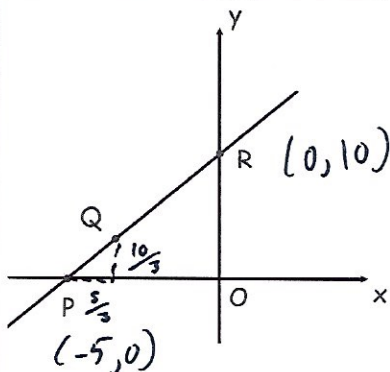


CorbettmOths

Rationalise the denominator and simplify fully  $\frac{9}{\sqrt{10}+3} \times \frac{\sqrt{10}-3}{\sqrt{10}-3}$

$$\frac{9\sqrt{10} - 27}{10 - 9}$$

$$9\sqrt{10} - 27$$



The line  $y = 2x + 10$  passes through the points P, Q and R.

$$PQ : QR = 1 : 2$$

Find the coordinates of the point Q

$$\begin{aligned} \vec{PR} &= \begin{pmatrix} 5 \\ 10 \end{pmatrix} & PQ &= \frac{1}{3} \vec{PR} \\ & & &= \frac{1}{3} \begin{pmatrix} 5 \\ 10 \end{pmatrix} = \begin{pmatrix} 5/3 \\ 10/3 \end{pmatrix} \end{aligned}$$

$$-5 + \frac{5}{3} = -\frac{10}{3}$$

$$Q \left( -\frac{10}{3}, \frac{10}{3} \right)$$

$$A = \begin{pmatrix} 5 & -1 \\ -2 & 5 \end{pmatrix} \quad B = \begin{pmatrix} -1 & 6 \\ 7 & 2 \end{pmatrix}$$

$$C = \begin{pmatrix} -3 \\ 2 \end{pmatrix}$$

Work out the matrix **BAC**

$$\begin{pmatrix} -1 & 6 \\ 7 & 2 \end{pmatrix} \begin{pmatrix} 5 & -1 \\ -2 & 5 \end{pmatrix}$$

$$BA = \begin{pmatrix} -17 & 31 \\ 31 & 3 \end{pmatrix}$$

$$BAC = \begin{pmatrix} -17 & 31 \\ 31 & 3 \end{pmatrix} \begin{pmatrix} -3 \\ 2 \end{pmatrix}$$

$$= \begin{pmatrix} 113 \\ -87 \end{pmatrix}$$