

3rd February

Corbettmaths

Make r the subject of the formula

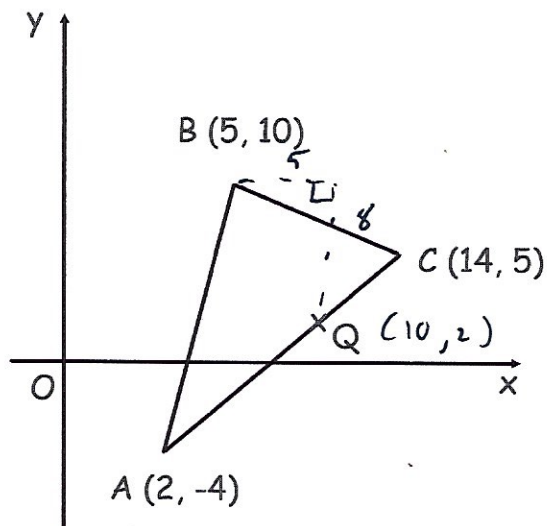
$$8r + 1 = 5v(3r + 3)$$

$$8r + 1 = 15rv + 15v$$

$$1 - 15v = r(15v - 8)$$

$$r = \frac{1 - 15v}{15v - 8}$$

Shown below is triangle ABC



Q is a point on AC such that

$$AQ:QC = 2:1$$

Work out the length of BQ

$$\vec{AC} = \begin{pmatrix} 12 \\ 9 \end{pmatrix} \quad \vec{AQ} = \begin{pmatrix} 8 \\ 6 \end{pmatrix}$$

$$Q(10, 2)$$

$$\begin{aligned} BQ^2 &= 5^2 + 8^2 \\ &= 25 + 64 \\ &= 89 \end{aligned}$$

$$BQ = \sqrt{89}$$

Line L is the tangent to the curve
 $y = 2x^2 - 3x + 1$ at the point $(3, 10)$
 x y

Work out the equation of L

$$\frac{dy}{dx} = 4x - 3$$

$$x = 3, \quad \frac{dy}{dx} = 9$$

$$y = 9x + c$$

$$10 = 27 + c \quad c = -17$$

$$y = 9x - 17$$