



6th February

PQR is a straight line.

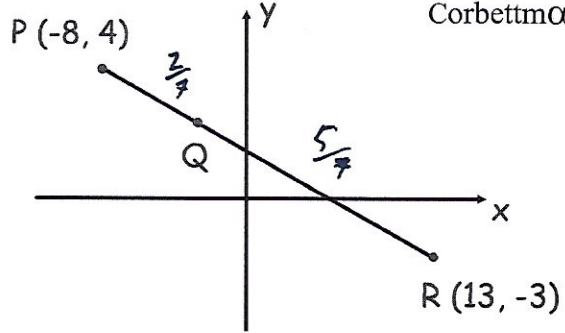
PQ : QR is 2 : 5

$$\vec{PR} = \begin{pmatrix} 21 \\ -7 \end{pmatrix}$$

Work out the coordinates of the point Q

$$\vec{PQ} = \begin{pmatrix} 6 \\ -2 \end{pmatrix}$$

$$Q(-2, 2)$$



Solve the simultaneous equations

$$\frac{y+2}{x-3} = -4$$

$$\frac{y-6}{x+5} = 2$$

$$y+2 = -4(x-3)$$

$$y-6 = 2x+10$$

$$y+2 = -4x+12$$

$$y = 2x+16$$

$$y = -4x+10$$

$$2x+16 = -4x+10$$

$$6x = -6$$

$$x = -1 \quad y = 14$$

$$x = -1$$

$$y = 14$$

Solve $9\cos\theta + 4\sin\theta = 0$

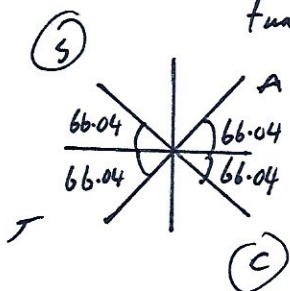
for $90^\circ \leq \theta \leq 360^\circ$

$$9\cos\theta = -4\sin\theta$$

$$9 = -4\tan\theta$$

$$\tan\theta = -2.25$$

$$\tan^{-1} 2.25 = 66.04^\circ$$



$$180 - 66.04 = 113.96^\circ$$

$$360 - 66.04 = 293.96^\circ$$

$$\theta = 113.96^\circ, 293.96^\circ$$