

4th January



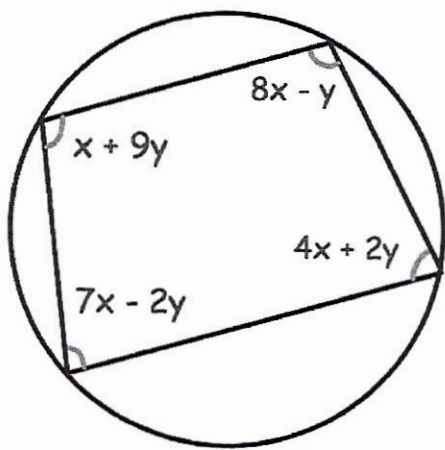
Corbettmaths

$$A = \begin{pmatrix} 9 & -1 \\ 0 & 4 \end{pmatrix}$$

Work out the matrix $3A$

$$3A = \begin{pmatrix} 27 & -3 \\ 0 & 12 \end{pmatrix}$$

Shown is a cyclic quadrilateral

Find the values of x and y

$$(x + 9y) + (4x + 2y) = 180$$

$$5x + 11y = 180 \quad \text{--- (1)}$$

$$(7x - 2y) + (8x - y) = 180$$

$$15x - 3y = 180 \quad \text{--- (2)}$$

$$3 \times (1) \quad \underline{15x + 33y = 540}$$

$$-36y = -360$$

$$y = 10$$

$$x = 14$$

The coefficient of the x^2 term in the expansion of $(x + a)^6$ is 3840Find the possible values of a

$$\begin{array}{r} 1 \\ 1 \quad 1 \\ 1 \quad 2 \quad 1 \\ 1 \quad 3 \quad 3 \quad 1 \\ 1 \quad 4 \quad 6 \quad 4 \quad 1 \\ 1 \quad 5 \quad 10 \quad 10 \quad 5 \quad 1 \\ 1 \quad 6 \quad 15 \quad 20 \quad 15 \quad 6 \quad 1 \\ \hline \end{array}$$

$$15x^2a^4$$

$$\underline{15a^4x^2} = 3840x^2$$

$$15a^4 = 3840$$

$$a^4 = 256$$

$$a = \pm 4$$