

Q1 (AQA AS SPECIMEN PAPER 2 Q4)

- 4 Find the coordinates, in terms of a , of the minimum point on the curve $y = x^2 - 5x + a$, where a is a constant.

Fully justify your answer.

[3 marks]

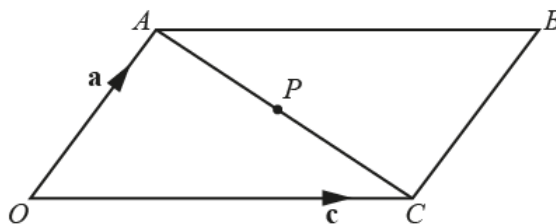
Q2 (AQA AS SPECIMEN PAPER 1 Q7)

- 7 Determine whether the line with equation $2x + 3y + 4 = 0$ is parallel to the line through the points with coordinates $(9, 4)$ and $(3, 8)$.

[4 marks]

Q3 (OCR JUNE 2018 AS PAPER 1 Q7)

- 7 $OABC$ is a parallelogram with $\vec{OA} = \mathbf{a}$ and $\vec{OC} = \mathbf{c}$. P is the midpoint of AC .



- (i) Find the following in terms of \mathbf{a} and \mathbf{c} , simplifying your answers.

(a) \vec{AC} [1]

(b) \vec{OP} [2]

- (ii) Hence prove that the diagonals of a parallelogram bisect one another. [4]

Q4 (OCR AS PRACTICE PAPER 1 Q7)

- 7 The point A has position vector $\mathbf{i} - 2\mathbf{j}$. The point B is such that $|\vec{OB}| = |\vec{OA}|$ and \vec{OB} is perpendicular to \vec{OA} .

(i) (a) Find $|\vec{OB}|$. [2]

(b) Find the two possible directions of \vec{OB} , giving your answers correct to the nearest degree. [2]

The point C is such that $|\vec{AC}| = 2$.

(ii) Find the maximum and minimum values of $|\vec{OC}|$. [4]