Stationary Points

(a) Find the gradient of the curve $y = x^2 - 3x + 7$ at the point $(3, 7)$

(b) Find the gradient of the curve $y = x^3 + 4x^2 - 9x$ at the point $(2, 6)$

(c) Find the gradient of the curve $y = x + \frac{9}{x}$ at the point $(3, 6)$

(a) Find the coordinates of the minimum point on the curve $y = x^2 - 4$

(b) Find the coordinates of the minimum point on the curve $y = x^2 + 8x + 15$

(c) Find the coordinates of the maximum point on the curve $y = 7 - 6x - x^2$

(d) Find the coordinates of the maximum point on the curve $y = 2 + 5x - x^2$

(a) Find the coordinates of the stationary points on the curve $y = x^3 - 3x^2 + 4$. By sketching the graph, determine whether each point is a minimum point or a maximum point.

(b) Find the coordinates of the stationary point on the curve $y = 3x + \frac{12}{x^2}$. Is this point a minimum point or a maximum point?

(a) The curve with equation $y = x^2 + ax + b$ has a stationary point at $(-4, -11)$. Find the values of a and b.

(b) The curve with equation $y = c + dx - x^2$ has a stationary point at $(3, 10)$. Find the values of c and d.

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