

**10** The equation of a curve is such that  $\frac{d^2y}{dx^2} = 6x^2 - \frac{4}{x^3}$ . The curve has a stationary point at  $(-1, \frac{9}{2})$ .

(a) Determine the nature of the stationary point at  $(-1, \frac{9}{2})$ . [1]

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**(b)** Find the equation of the curve. [5]

[illegible]

- (c)** Show that the curve has no other stationary points.

[3]

This image shows a full page of white paper with ten horizontal dashed lines, typical of primary school handwriting practice paper. The lines are evenly spaced and extend across the entire width of the page. There is no text or other markings on the paper.

- (d)** A point  $A$  is moving along the curve and the  $y$ -coordinate of  $A$  is increasing at a rate of 5 units per second.

Find the rate of increase of the  $x$ -coordinate of  $A$  at the point where  $x = 1$ .

[3]

[illegible]