



Differentiation (Maxima and Minima)

Revise this topic →



← Check your work

This booklet features original exam style questions designed by me. They do not feature in past papers but are good practice for your exams.

The content is designed to reflect the style of the **AQA Level 2 Certificate in Further Maths**. It may not be suitable for other courses.





Answer **all** questions in the spaces provided.

1 $y = 2x^3 - 4x^2$

Work out $\frac{d^2y}{dx^2}$

[3 marks]

$$\frac{d^2y}{dx^2} = \underline{\hspace{10em}}$$

2 $y = \frac{2}{x} + 9x$

Work out $\frac{d^2y}{dx^2}$

[3 marks]

$$\frac{d^2y}{dx^2} = \underline{\hspace{10em}}$$





Do not write
outside the
box

3

$$y = x^5 + \frac{4}{x}$$

Work out the value of $\frac{d^2y}{dx^2}$ when $x = 2$

[4 marks]

Answer _____

4

The curve $y = x^4 - 32x$ has one stationary point.

Work out the coordinates of the stationary point.

[4 marks]

Answer (_____ , _____)

Turn over ►





5 Work out the coordinates of the two stationary points for the curve $y = x^3 + 3x^2$

[4 marks]

Stationary Point (_____ , _____)

Stationary Point (_____ , _____)

6 $y = \frac{18}{x} + 2x$

Show that y has a minimum value when $x = 3$

[5 marks]





Do not write
outside the
box

7 The curve $y = x^3 + 12x^2 + 36x + 1$ has two stationary points.

Work out the coordinates of the two stationary points and determine their nature.

[6 marks]

Stationary Point (_____ , _____) Nature _____

Stationary Point (_____ , _____) Nature _____

