Name:

Level 2 Further Maths



Ensure you have: Pencil or pen

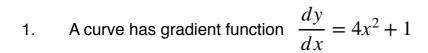
## Guidance

- 1. Read each question carefully before you begin answering it.
- 2. Check your answers seem right.
- 3. Always show your workings

Revision for this topic

www.corbettmaths.com/more/further-maths/





Work out the gradient of the curve when x = 3

(2)

2. A curve has gradient function 
$$\frac{dy}{dx} = 15 - x^3$$

Work out the gradient of the curve when x = -3

(2)

3. A curve has gradient function 
$$\frac{dy}{dx} = 7x^2 - 3$$

Work out the values of x for which the rate of change of y with respect to x is 25

(2)

4.	A curve has gradient function $\frac{dy}{dx} = 5x - x^2$
	(a) Work out the gradient of the curve when $x = 9$
	(2)
	(b) Work out the values of x for which the rate of change of y with respect to x is 1
	(2)
5.	$y = 2x^3 + 4x^2 - 7x$
	(a) Find $\frac{dy}{dx}$

(b) Work out the gradient of  $y = 2x^3 + 4x^2 - 7x$  at the point (1, -1)

(2)

(2)

6.	Work out the gradient of the curve $y = 3x^2 - 4x + 7$ at the point $(-2, 27)$					
	(3)					
7.	Work out the gradient of the curve $y = (x - 2)(3x + 1)$ at the point when $x = 3$					
	(3)					
8.	Work out the gradient of the curve $y = x^3(8 - x)$ at the point on the curve where $x = -1$					
	where $x = -1$					

.....

(3)

9. 
$$y = \frac{3}{5}x^5 - 3x^3$$

Work out the rate of change of y with respect to x when x = -1

10. 
$$y = \frac{2x^6 - x^5}{x^3}$$

Work out the rate of change of y with respect to x when x = 3

(3)

11.	Work out the gradient of the curve $y = (x - 2)(x + 1)^2$ at the point (2, 0)
	(4)
	- 2

The gradient of the curve at point P is 9

Work out the coordinates of the point P.

(4)

13. A curve has equation y = (x + 2)(x - 3)

The gradient of the curve at point P is -4

Work out the coordinates of the point P.

(4)

14. A curve has equation  $y = \frac{2}{3}x^3$ 

The gradient of the curve at the points P and Q are equal to 18

Work out the coordinates of the points P and Q.

15. A	curve has the eq	uation $y =$	$x^2 + ax$	+4  wh	iere a is a	constant.
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The gradient of the curve when x = 2 is twice the gradient of the curve when x = -1

Work out the value of a



## 16. A curve has the equation $y = x^3 + ax^2 - 8$ where a is a constant.

The gradient of the curve when x = 2 is eleven times the gradient of the curve when x = -2

Work out the value of a