

Basic Differentiation

Difficulty : Easy

Question Paper 2

Level	AS & A Level
Subject	Maths - Pure
Exam Board	Edexcel
Topic	Differentiation
Sub-Topic	Basic Differentiation
Difficulty	Easy
Booklet	Question Paper 2

Time allowed: 35 minutes

Score: /29

Percentage: /100

Grade Boundaries:

A*	A	B	C	D	E	U
>76%	61%	52%	42%	33%	23%	<23%

Question 1

Given that $y = 2x^5 + 7 + \frac{1}{x^3}$, $x \neq 0$, find, in their simplest form,

(a) $\frac{dy}{dx}$, (3)

(Total 3 marks)

Question 2

Given that $y = x^4 + 6x^{\frac{1}{2}}$, find in their simplest form

(a) $\frac{dy}{dx}$ (3)

(Total 3 marks)

Question 3

$$y = 5x^3 - 6x^{\frac{4}{3}} + 2x - 3$$

(a) Find $\frac{dy}{dx}$ giving each term in its simplest form. (4)

(b) Find $\frac{d^2y}{dx^2}$ (2)

(Total 6 marks)

Question 4

$$y = 2x^2 - \frac{4}{\sqrt{x}} + 1, \quad x > 0$$

(a) Find $\frac{dy}{dx}$, giving each term in its simplest form. (3)

(b) Find $\frac{d^2y}{dx^2}$, giving each term in its simplest form. (2)

(Total 5 marks)

Question 5

Given that $y = 4x^3 - \frac{5}{x^2}$, $x \neq 0$, find in their simplest form

(a) $\frac{dy}{dx}$ (3)

(Total 3 marks)

Question 6

Given

$$y = \sqrt{x} + \frac{4}{\sqrt{x}} + 4, \quad x > 0$$

find the value of $\frac{dy}{dx}$ when $x = 8$, writing your answer in the form $a\sqrt{2}$, where a is a rational number. (5)

(Total 5 marks)

Question 7

(i) Given that $y = 5x^3 + 7x + 3$, find (3)

(a) $\frac{dy}{dx}$,

(b) $\frac{d^2y}{dx^2}$. (1)

(Total 4 marks)