

## 2.4 Homework

### GCSE Mathematics Differentiation I

Marks Available : 26

#### Question 1

For each of the following equations, first expand the brackets, then determine  $\frac{dy}{dx}$

( i )  $y = 13(x^3 + 2)$   $\frac{dy}{dx} =$

( ii )  $y = x^3(x^2 + 1)$   $\frac{dy}{dx} =$

( iii )  $y = 3x^3(2x + 5)$   $\frac{dy}{dx} =$

( iv )  $y = (x + 5)(x + 3)$   $\frac{dy}{dx} =$

( v )  $y = (4x^3 + 3)(x^2 + 7)$   $\frac{dy}{dx} =$

[ 10 marks ]

#### Question 2

For each of these equations, write down the corresponding gradient equation.

( i )  $y = -7x + 12$   $\frac{dy}{dx} =$

( ii )  $y = x^{-3}$   $\frac{dy}{dx} =$

( iii )  $y = 6x^{-5} + 19x^5$   $\frac{dy}{dx} =$

( iv )  $y = \frac{1}{x^7}$   $\frac{dy}{dx} =$

( v )  $y = \frac{4}{5x^3}$   $\frac{dy}{dx} =$

( vi )  $y = x^{2.5} - 8x^{1.5}$   $\frac{dy}{dx} =$

( vii )  $y = 6x^{\frac{5}{2}} + x^{\frac{1}{3}}$   $\frac{dy}{dx} =$

( viii )  $y = \sqrt{x}$   $\frac{dy}{dx} =$

[ 16 marks ]

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Teachers may obtain detailed worked solutions to the exercises by email from MHHShrewsbury@Gmail.com