#### 2.4 Homework

# Marks Available: 26

# **Question 1**

For each of these equations, first expand the brackets and 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 )	$y = 6x^{-5} + 19x^{5}$	$\frac{dy}{dx} =$
( <b>iv</b> )	$y = \frac{1}{x^7}$	$\frac{dy}{dx} =$
( <b>v</b> )	$y = \frac{4}{5x^3}$	$\frac{dy}{dx} =$
( <b>vi</b> )	$y = x^{2.5} - 8 x^{1.5}$	$\frac{dy}{dx} =$
( <b>vii</b> )	$y = 6x^{\frac{5}{2}} + x^{\frac{1}{3}}$	$\frac{dy}{dx} =$
( viii )	$y = \sqrt{x}$	$\frac{dy}{dx} =$

[ 16 marks ]

This document is Licensed for use by staff and students at **Shrewsbury School, England** To obtain a Licence please visit www.NumberIsAll.com © 2020 Number Is All