

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

(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]