Q1. Differentiate the following with respect to x

(i) $3x^2 + 2x$ (ii) $5x - 8x^4$ (iii) $120x^6 - x^{-5}$

Q2. y = $2x^2 + 5x - 1$ Find $\dfrac{dy}{dx}$ when x = 3

Q3. Differentiate $\sqrt{x}(2x + x^2)$ with respect to x

Q4. $f(x) = \sqrt{x}\left(4 + 2\sqrt{x}\right)$ Find f'(4)

Q5. Find the derivative of y = (3x + 4)(x - 2)

Q6. Find f'(x) for each of the following:

(i) $f(x) = 7x^2 - \dfrac{3}{x}$ (ii) $f(x) = x^2 - 5\sqrt{x}$ (iii) $f(x) = 3x^{-2} + \dfrac{1}{2\sqrt{x}}$

Q7. If y = $3x^{-2} + 2x^{\frac{3}{2}}$, determine the value of $\dfrac{dy}{dx}$

Q8. If f(x) = $\dfrac{x-3}{x^2\sqrt{x}}$ find the gradient of the tangent of f(x) at the point where x = 1