

Question 1 (8 marks)

(a) For the functions below, determine $\frac{dy}{dx}$. You do not need to simplify your answers.

(i) $y = 3\cos(2+7x)$.

$$\frac{dy}{dx} = -21 \sin(2+7x)$$

(2 marks)

(ii) $y = \frac{5x+2}{x\sqrt{x}}$.

$$y = \frac{5x+2}{x^{3/2}}$$
$$\frac{dy}{dx} = \frac{5 \cdot x^{3/2} - (5x+2) \cdot \frac{3}{2} x^{1/2}}{x^3}$$

(3 marks)