

$$p) \quad y = \sin x \quad \frac{dy}{dx} = \cos x$$

$$g) \quad y = e^x \quad \frac{dy}{dx} = e^x$$

Question 4. Determine Integrals for

$$a) \quad \int 3x^5 dx = \frac{3x^6}{6} + C$$

$$b) \quad \int 5x^{-3} dx = \frac{5x^{-2}}{-2} + C$$

$$c) \quad \int \frac{9}{3x} dx = \cancel{\frac{9}{3x}}$$

$$d) \quad \int \sec^2 x dx = \frac{1}{x} + C$$

$$e) \quad \int 2 \cos x dx = 2 \sin x + C$$

$$f) \quad \int 12 dx = 0 + C$$

$$g) \quad \int x^{\frac{3}{2}} dx = \frac{x^{\frac{3}{2}+1}}{\frac{3}{2}+1} + C = \frac{x^{\frac{5}{2}}}{\frac{5}{2}} + C$$

$$h) \quad \int x^{-\frac{1}{2}} dx = \frac{x^{-\frac{1}{2}+1}}{-\frac{1}{2}+1} + C = \frac{x^{\frac{1}{2}}}{\frac{1}{2}} + C = 2x^{\frac{1}{2}} + C$$

$$i) \quad \int 3x^{-3} dx = -\frac{3}{2} x^{-2} + C$$

$$j) \quad \int 7^x dx = \frac{7^x}{\ln 7} + C$$