

1. Name:

ID #:

(Show your work)

Evaluate the following integrals

Q1. $\int 9x\sqrt{1+2x^2} dx =$ $u = 1+2x^2$ $du = 4x dx$

$$= \frac{9}{4} \int \sqrt{1+2x^2} \cdot 4x dx = \int \sqrt{u} du$$

$$= \frac{(\cancel{9})2 \sqrt{u^3}}{4 \cdot 3} + C = \frac{18 \sqrt{1+2x^2}}{12} + C = \frac{3\sqrt{1+2x^2}}{2} + C$$

Q2. $\int \frac{2x^6 + 8x^4 - 4x}{2x^2} dx = \int 2x^4 + 4x^2 - \frac{2}{x} dx$

$$= \frac{x^5}{5} + \frac{4x^3}{3} - 2\ln|x| + C$$

Q3. $\int_3^6 e^{3t} dt = \frac{e^{3t}}{3} \Big|_3^6 = \frac{e^{18} - e^9}{3}$