

Solutions for Review of u-Substitution

$$(a) \quad \int \frac{x \cdot e^{x^2}}{2 + e^{x^2}} \cdot dx = \frac{1}{2} \ln(2 + e^{x^2}) + C$$

$$(b) \quad \int \frac{24 \cdot x^3 + 4}{(3 \cdot x^4 + 2 \cdot x + 1)^9} \cdot dx = \frac{-1}{4 \cdot (3 \cdot x^4 + 2 \cdot x + 1)^8} + C$$

$$(c) \quad \int \frac{1}{2 \cdot \sqrt{x}} \cdot \frac{1}{(1+x)} \cdot dx = \arctan(\sqrt{x}) + C$$

$$(d) \quad \int \frac{1}{x \cdot \ln(x^3)} \cdot dx = \frac{1}{3} \ln(\ln(x^3)) + C$$

$$(e) \quad \int \frac{1}{9 + x^2} \cdot dx = \frac{1}{3} \arctan\left(\frac{x}{3}\right) + C$$

$$(f) \quad \int \frac{-2x}{\sqrt{1-x^2}} \cdot dx = 2 \cdot \sqrt{1-x^2} + C$$

$$(g) \quad \int x^2 \cdot \sqrt{x-2} \cdot dx = \frac{2}{105} (x-2)^{\frac{3}{2}} \cdot (32 + 24x + 15x^2) + C$$