



# Integration Review



Classroom: Math Examples

Due:

Student Name:

Date Submitted:

1) Find the integral of  $-2x^7 + 2x + 5$  with respect to  $x$ .

Show Work

$$\left(-\frac{2}{8}\right)x^8 + x^2 + 5x + C$$

$$-\frac{1}{4}x^8 + x^2 + 5x + C$$

2) Evaluate  $\int_0^{\frac{1}{2}\pi} \sin\theta \cos\theta d\theta$ .  $u = \sin(\theta)$   
 $du = \cos(\theta)d\theta$   
 $d\theta = du/\cos(\theta)$

Show Work

$$\int u \cos(\theta) \frac{du}{\cos(\theta)} = \int u du = \frac{1}{2}u^2 = \frac{1}{2}\sin^2(\theta) + C$$

$$\frac{1}{2}[\sin^2(\frac{1}{2}\pi) - \sin^2(0)] = \frac{1}{2}(\frac{\sqrt{2}}{2})^2 = \frac{1}{2}(\frac{2}{4}) = \frac{1}{4}$$

$$-\frac{1}{4}x^8 + x^2 + 5x + C$$

$$\frac{1}{4}$$

3) Find the derivative of  $\ln(5x + 2)$ .

Show Work

$$\frac{5}{5x + 2}$$

4) Find the derivative of

$$-5t^6 + 4t^2 - 9t - 4 + 2t^{-3}$$

Show Work  $-5(6)t^5 + 4(2)t - 9 + 2(-3)t^{-4}$

$$-30t^5 + 8t - 9 - 6t^{-4}$$

$$-30t^5 + 8t - 9 - 6t^{-4}$$

5) Find  $\frac{\partial f}{\partial x}$  given  $f(x, y) = 5x - 4y$ .

Show Work

$$5$$

6) Find  $\frac{\partial g}{\partial x}$  given  $g(x, y) = -7x^2 + 3xy + 4y^2$ .

Show Work

$$-7(2)x + 3y$$

$$-14x + 3y$$

$$-14x + 3y$$

