

Trig Integration Formulas

p. 366 - 373 (5.3)

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1. $\int (\cos(x)) dx = \sin(x) + C$

2. $\int (\sin(x)) dx = -\cos(x) + C$

3. $\int \sec^2(x) dx = \tan(x) + C$

4. $\int (\sec(x)\tan(x)) dx = \sec(x) + C$

5. $\int \csc^2(x) dx = -\cot(x) + C$

6. $\int (\csc(x)\cot(x)) dx = -\csc(x) + C$

1. $\int (2\sin(x)) dx = \boxed{-2\cos x + C}$

2. $\int (\pi \sec^2(\theta) - \csc^2(\theta)) d\theta = \pi \int \sec^2 \theta - \int \csc^2 \theta d\theta$
 $= \boxed{\pi \tan \theta + \cot \theta + C}$

3. $\int (3t^2 - 1)^2 dt$
 $= \int (9t^4 - 6t^2 + 1) dt = \boxed{\frac{9}{5}t^5 - 2t^3 + t + C}$

**4. If the second derivative of f is given by $f''(x) = 2x - \cos x$, which of the following could be $f(x)$?

$f'(x) = x^2 - \sin x + C$
 $f(x) = \frac{x^3}{3} + \cos x + Cx + C_1$

a) $\frac{x^3}{3} + \cos x - x + 1$ b) $\frac{x^3}{3} - \cos x - x + 1$

c) $x^3 + \cos x - x + 1$ d) $x^2 - \sin x + 1$ e) $x^2 - + \sin x + 1$