

Revision Worksheet

Math – 7.3

Grade 12A

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Objective: Integrate functions using the trigonometric substitution

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Q1: Choose the correct answer:

$$\int \frac{\sqrt{9-x^2}}{x^2} dx$$

☐ $-\frac{\sqrt{9-x^2}}{x} - \frac{x}{3} + C$

☐ $-\sin^{-1}\left(\frac{x}{3}\right) - \frac{\sqrt{9-x^2}}{3} + C$

☐ $-\sin^{-1}\left(\frac{x}{3}\right) - \frac{\sqrt{9-x^2}}{x} + C$

☐ $-\frac{\sqrt{9-x^2}}{x} + \frac{x}{3} + C$

$$\int \sin^5 x \cos^2 x dx$$

☐ $-\frac{\cos^7(x)}{7} + \frac{2\cos^5(x)}{5} - \frac{\cos^3(x)}{3} + C$

☐ $\frac{\cos^7(x)}{7} - \frac{2\cos^5(x)}{5} + \frac{\cos^3(x)}{3} + C$

☐ $-\frac{\cos^7(x)}{7} + \frac{\cos^5(x)}{5} - \frac{\cos^3(x)}{3} + C$

☐ $-\frac{\cos^5(x)}{5} + \frac{\cos^3(x)}{3} - \cos(x) + C$

$$\int \sec^4 x dx$$

☐ $\frac{\tan^3(x)}{3} + x + C$

☐ $\frac{\tan^3(x)}{3} + \tan(x) + C$

☐ $\frac{\tan^2(x)}{2} + x + C$

☐ $\frac{\tan^3(x)}{3} - \tan(x) + C$

$$\int \frac{dx}{\sqrt{x^2-4}} \quad , \quad x > 2$$

☐ $\ln\left|\frac{x+\sqrt{x^2-4}}{2}\right| + C$

☐ $\frac{\sqrt{x^2-4}}{2} + C$

☐ $\ln\left|\frac{x+\sqrt{x^2-4}}{2}\right| + \frac{x}{2} + C$

☐ $\frac{x}{2} + \frac{\sqrt{x^2-4}}{2} + C$

$$\int \sin^5 x \cos^2 x dx$$

☐ $-\frac{\cos^7(x)}{7} + \frac{2\cos^5(x)}{5} - \frac{\cos^3(x)}{3} + C$

☐ $\frac{\cos^7(x)}{7} - \frac{2\cos^5(x)}{5} + \frac{\cos^3(x)}{3} + C$

☐ $-\frac{\cos^7(x)}{7} + \frac{\cos^5(x)}{5} - \frac{\cos^3(x)}{3} + C$

☐ $-\frac{\cos^5(x)}{5} + \frac{\cos^3(x)}{3} - \cos(x) + C$