

Student Name: \_\_\_\_\_

Score: \_\_\_\_\_

### Integration using Substitution

Sheet 3

Integrate the following w.r.t.x

$$\int \frac{12x^3}{\sqrt{3x^4 + 5}} dx$$

$$\int \tan x \sec^2 x dx$$

$$\int \cos x \sin^7 x dx$$

$$\int \sin^3 x \cot x dx$$

$$\int (5x^4 - 3)(1 - x^5)$$

$$\int 9x^8 e^{x^9} dx$$

$$\int \frac{\sin x}{\sqrt{1 - \cos x}} dx$$

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Answer key

Integration using Substitution

Sheet 3

$$2\sqrt{3x^4 + 5} + C$$

$$\frac{\tan^2 x}{2} + c$$

$$\frac{\sin^8 x}{8} + C$$

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$$\frac{\sin^3 x}{3} + C$$

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$$-\frac{(1 - x^5 + 3x)^2}{2}$$

$$10 - + C$$

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$$e^{x^9} + C$$

$$2\sqrt{1 - \cos x} + C$$