

Student Name: _____

Score: _____

Integration using Substitution

Sheet 2

Integrate the following w.r.t. x

$$\int \frac{\cos(\tan^{-1} x)}{1+x^2} dx$$

$$\int \sec^2 x \sqrt{\tan x} dx$$

$$\int \frac{2\sqrt{\ln(x)}}{x} dx$$

$$\int \frac{\sec^2 x}{8\sqrt{\tan x}} dx$$

$$\int \frac{-\csc^2 x}{3 \cot x} dx$$

$$\int \frac{15x^2}{5x^3 + 3} dx$$

$$\int \frac{\sin^{-1} x}{5\sqrt{1-x^2}} dx$$

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Answer key

Integration using Substitution

Sheet 2

$$\sin(\tan^{-1} x) + C$$

$$\frac{2(\tan x)^{\frac{3}{2}}}{3} + C$$

$$\frac{4\ln(x)^{\frac{3}{2}}}{3} + C$$

$$\frac{e^{14 \sin x}}{2} + C$$

$$\frac{\sqrt{\tan x}}{4} + C$$

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$$\frac{\ln(|\cot x|)}{3} + C$$

$$\ln(|5x^3+3|) + C$$

$$\frac{(\sin^{-1} x)}{10} + C$$