Math 142 – Calculus 2 Name_____
Section 8.3 Video Worksheet

Substitution with Trigonometry

3 basic trig substitutions

$\sqrt{a^2 + x^2} =$

$x = a\sin x$

$x = a\sec\theta$

$$\int \frac{3dy}{\sqrt{1+9y^2}}$$

$$\int \sqrt{1-9t^2}\,dt$$

$$\int \frac{5dx}{\sqrt{25x^2-9}}, x > \frac{3}{5}$$

$$\int \frac{dx}{x^2\sqrt{x^2+1}}$$

$$\int_1^e \frac{dy}{y\sqrt{1+(\ln y)^2}}$$

$$\left(x^2+1\right)^2 \frac{dy}{dx} = \sqrt{x^2+1}, y(0) = 1$$