

Trigonometric Substitutions

<u>Expression</u>	<u>Substitution</u>
$a^2 + u^2$	$u = a \tan \theta$
$a^2 - u^2$	$u = a \sin \theta$
$u^2 - a^2$	$u = a \sec \theta$

Directions: Evaluate each integral.

1. $\int \frac{1}{\sqrt{x^2 + 16}} dx$

$$2. \int \frac{x^2}{\sqrt{4-x^2}} dx$$

3. $\int \frac{1}{x\sqrt{4x^2+9}} dx$

$$4. \int \frac{1}{(x^2 - 9)^{\frac{3}{2}}} dx$$