

Expression	Substitution	Identity
$\sqrt{a^2 - x^2}$		
$\sqrt{a^2 + x^2}$		
$\sqrt{x^2 - a^2}$		

Table 1: Table of Trigonometric Substitutions

TRIGONOMETRIC SUBSTITUTION

Construct a right triangle defined by $\sin \theta = \frac{x}{a}$

Construct a right triangle defined by $\tan \theta = \frac{x}{a}$

Construct a right triangle defined by $\sec \theta = \frac{x}{a}$

Work the following problems before class

- $\int \frac{x}{\sqrt{36 - x^2}} dx$

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

3. $\int \frac{\sqrt{x^2 - 9}}{x^3} dx$