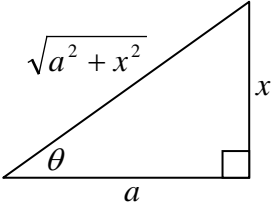
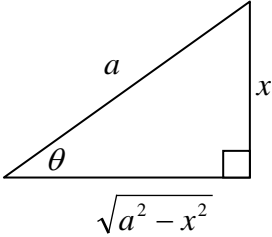
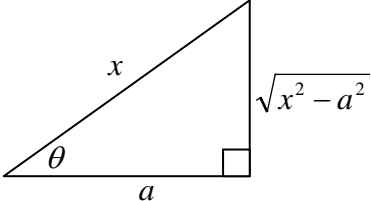


Trigonometric Substitution

Patterns to Look For
(where $a > 0$)

Expression	Substitution	dx	Triangle	Conversion
$\sqrt{a^2 + x^2}$	$x = a \tan \theta$	$dx = a \sec^2 \theta d\theta$		$\sqrt{a^2 + x^2} = a \sec \theta$
$\sqrt{a^2 - x^2}$	$x = a \sin \theta$	$dx = a \cos \theta d\theta$		$\sqrt{a^2 - x^2} = a \cos \theta$
$\sqrt{x^2 - a^2}$	$x = a \sec \theta$	$dx = a \sec \theta \tan \theta d\theta$		$\sqrt{x^2 - a^2} = a \tan \theta$