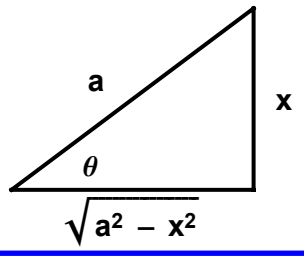
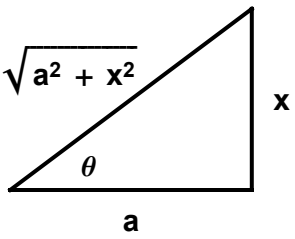
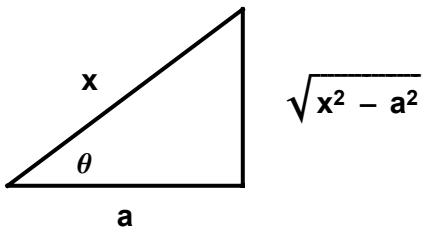
Trigonometric Substitution

$a^2 - x^2$	$a^2 + x^2$	$x^2 - a^2$
$x = a\sin\theta$	$x = a\tan\theta$	$x = a\sec\theta$
$\sin\theta = \frac{x}{a}$	$\tan\theta = \frac{x}{a}$	$\sec\theta = \frac{x}{a}$
		

For problems 1 – 6, evaluate the integral.

1. $\int \frac{x^3}{\sqrt{4 - x^2}}\,dx$

2. $\int \frac{\sqrt{x^2 - 25}}{x}\,dx$

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

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

5. $\int \frac{1}{(4x^2 + 9)^2}\, dx$

6. $\int \frac{3x}{\sqrt{49 - 9x^2}}\, dx$