Trig Substitution:

Expression	Substitution	Domain	Simplification
$\sqrt{a^2-u^2}$	$u=a\sin\theta$	$-\frac{\pi}{2}\le\theta\le\frac{\pi}{2}$	$\sqrt{a^2-u^2}=a\cos\theta$
$\sqrt{a^2+u^2}$	$u=a\tan\theta$	$-\frac{\pi}{2}<\theta<\frac{\pi}{2}$	$\sqrt{a^2+u^2}=a\sec\theta$
$\sqrt{u^2-a^2}$	$u=a\sec\theta$	$0\le\theta\le\pi,\theta\ne\frac{\pi}{2}$	$\sqrt{u^2-a^2}=a\tan\theta$