Use this substitution	in this expression	... here's the arithmetic	simplifed radical	domain of t
$x = a\sin(t)$	$\sqrt{a^2 - x^2}$	$\sqrt{a^2 - a^2\sin^2 t} = \sqrt{a^2(1 - \sin^2 t)} = \sqrt{a^2\cos^2 t}$	$= a\cos(t)$	$t \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$
$x = a\tan(t)$	$\sqrt{a^2 + x^2}$	$\sqrt{a^2 + a^2\tan^2 t} = \sqrt{a^2(1 + \tan^2 t)} = \sqrt{a^2\sec^2 t}$	$= a\sec(t)$	$t \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$
$x = a\sec(t)$	$\sqrt{x^2 - a^2}$	$\sqrt{a^2\sec^2 t - a^2} = \sqrt{a^2(\sec^2 t - 1)} = \sqrt{a^2\tan^2 t}$	$= a\tan(t)$	$t \in [0, 2\pi]$