

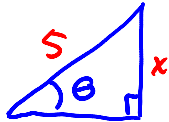
Section 28.8: Integration by Trig Substitution

Thursday, February 14, 2013
11:13 AM

review (from precalculus)

if $x = 5 \sin \theta$, find $\tan \theta$ and $\sec \theta$ in terms of x

how to start? draw a triangle:



$$\text{if } x = 5 \sin \theta \\ \sin \theta = \frac{x}{5}$$

↑
how to calculate?
Pythagoras
 $= \sqrt{25 - x^2}$

so, what's $\tan \theta$?

$$\tan \theta = \frac{\text{opp}}{\text{adj}} = \frac{x}{\sqrt{25 - x^2}}$$

$\sec \theta$?

$$\sec \theta = \frac{1}{\cos \theta} = \frac{5}{\sqrt{25 - x^2}}$$