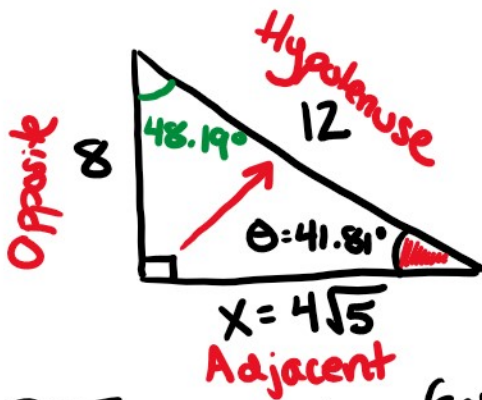


7.1 Right Triangle Trigonometry

Wednesday, June 19, 2019 2:04 PM



① Pythagorean Theorem:

$$a^2 + b^2 = c^2$$

↑ ↑
 legs hypotenuse

$$x^2 + 8^2 = 12^2$$

$$x^2 + 64 = 144$$

$$x^2 = 80$$

$$x = \sqrt{80} = 4\sqrt{5}$$

√16 √5

② Trigonometry (SOHCAHTOA)

sine	$\sin \theta = \frac{2}{3}$	→ cosecant	$\csc \theta = \frac{3}{2}$	} reciprocals
cosine	$\cos \theta = \frac{\sqrt{5}}{3}$	→ secant	$\sec \theta = \frac{3\sqrt{5}}{5}$	
tangent	$\tan \theta = \frac{2\sqrt{5}}{5}$	→ cotangent	$\cot \theta = \frac{5}{2\sqrt{5}}$	

③ Inverse Trigonometry (used to calculate angle measures)

$\sin^{-1}(\sin \theta)$ = $\sin^{-1}\left(\frac{2}{3}\right)$	$\cos^{-1}(\cos \theta)$ = $\cos^{-1}\left(\frac{\sqrt{5}}{3}\right)$	$\tan^{-1}(\tan \theta)$ = $\tan^{-1}\left(\frac{2\sqrt{5}}{5}\right)$
↓	↓	↓
$\theta = 41.81^\circ$	$\theta = 41.81^\circ$	$\theta = 41.81^\circ$

④ The sum of the angles in a Δ is 180°

$$90^\circ + 41.81^\circ = 131.81^\circ$$

$$180^\circ - 131.81^\circ = \boxed{48.19^\circ}$$