TOPIC: SOLVING TRIG EQUATIONS USING IDENTITIES

Solve Trig Equations Using Identity Substitutions

◆ Recall: Solve trig equations by finding θ that makes the equation true.

- When given eqns with *multiple* trig fcns, use _____ to rewrite in terms of *one* trig fcn, then solve.

Recall: Linear Trig Equations	New: Other Trig Equations
$\tan\theta = 1$ ↓ $\theta = \frac{\pi}{4} + \pi n$	$\frac{\sec^2\theta - 1}{\tan\theta} = 1$ ↓ $\frac{\quad}{\tan\theta} = 1$ ↓ $\tan\theta = 1$ ↓ $\theta = \frac{\pi}{4} + \pi n$ Substitute using _____ Identity

EXAMPLE Find all solutions to the equation.

$$\frac{\sin 2\theta}{\cos(-\theta)} = 1$$

Rewrite **[TOP | BOTTOM]** using _____ Identity

Rewrite **[TOP | BOTTOM]** using _____ Identity

Solve _____ trig equation

TOPIC: SOLVING TRIG EQUATIONS USING IDENTITIES

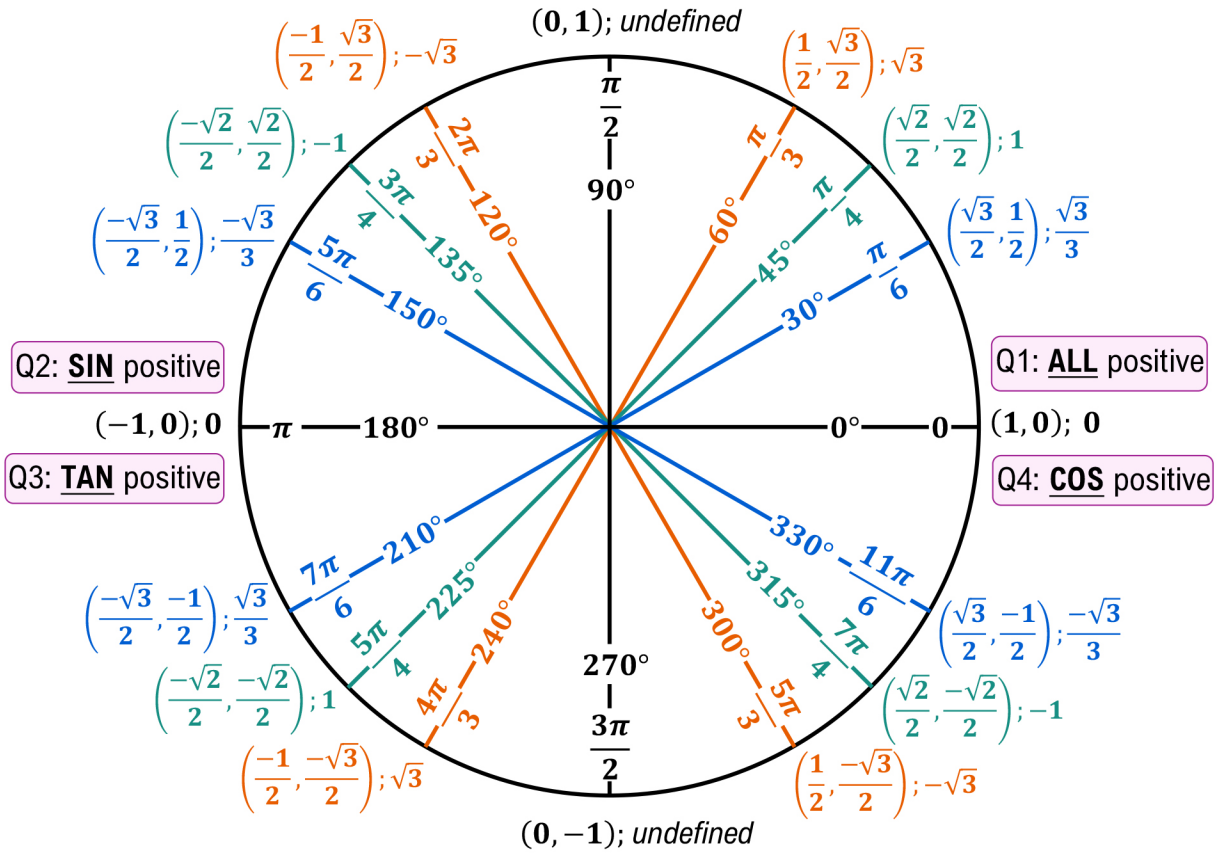
PRACTICE Find all solutions to the equation.

$$(\cos\theta + \sin\theta)(\cos\theta - \sin\theta) = -\frac{1}{2}$$

PRACTICE Find all solutions to the equation where $0 \leq \theta \leq 2\pi$.

$$\sin\theta\cos(2\theta) - \sin(2\theta)\cos\theta = \frac{\sqrt{2}}{2}$$

CHAPTER RESOURCE: THE UNIT CIRCLE



ASTC (**A**ll **S**tudents **T**ake **C**alculus)