Warm Up

Prove the following identity:

$$\frac{1+\cos 2\theta}{\sin 2\theta} = \cot\theta$$

$$\frac{1+\cos^2\theta-\sin^2\theta}{2\sin\theta\cos\theta} \qquad \frac{\cos\theta}{\sin\theta}$$

$$\frac{\cos^2\theta+\cos^2\theta}{2\sin\theta\cos\theta}$$

$$\frac{2\cos^2\theta}{2\sin\theta\cos\theta}$$

$$\frac{\cos\theta}{\sin\theta}$$

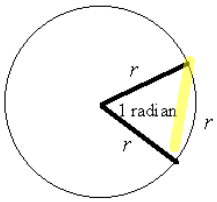
Find an angle, θ, coterminal with -225^o, where $-360 \le \theta \le 360^o$.

$$A_c = -225^\circ + 360^\circ$$

$$= 135^\circ$$

Radian Measure

A radian is the angle subtended by an arc of length r (radius)



$$\theta = \frac{a}{r}$$ ← arc length, ← radius

$$360° = \frac{2\pi r}{r}$$

Degrees Radians

$$360^\circ = 2\pi$$

$$180^\circ = \pi$$

$1° = \frac{\pi}{180}$ radians	$1 \text{ rad} = \frac{180}{\pi}$

Ex. Convert the following angles from degrees to radians:

a) $60^\circ \cdot \frac{\pi}{180^\circ}$

$\frac{60\pi}{180^\circ}$

$\frac{\pi}{3}$

b) $728^\circ \cdot \frac{\pi}{180}$

$\frac{728\pi}{180}$

$\frac{182\pi}{45}$

c) $-270^\circ \cdot \frac{\pi}{180}$

$\frac{-270\pi}{180}$

$\frac{-3\pi}{2}$

$\frac{\pi}{2}$

Ex. Convert the following angles from radians to degrees:

a) $\pi/6$

$\frac{\pi}{6} \cdot \frac{180}{\pi}$

$\frac{180\pi}{6\pi}$

$30°$

a) $-2\pi/5$

$\frac{-2\pi}{5} \cdot \frac{180}{\pi}$

$\frac{-360\pi}{5\pi}$

$-72°$

$288°$

c) 6.485 rads

$6.485 \times \frac{180}{\pi}$

$\frac{1167.3}{\pi}$

$372°$

$12°$

Ex. Find the coterminal angle, θ, of $\frac{\pi}{4}$ where $-2\pi \leq \theta \leq 2\pi$

Remember: Coterminal angles share the same terminal arm!

$$A_c = \frac{\pi}{4} - 2\pi$$

$$= \frac{\pi}{4} - \frac{8\pi}{4}$$

$$= \boxed{\frac{-7\pi}{4}}$$

Homework

Omit #7