

Warm-up!

A) Find all values of θ with $0 \leq \theta < 2\pi$ for which

$$\sin \theta = -\frac{1}{2}$$

B) Find all values of θ with $0 \leq \theta < 2\pi$ for which

$$\sec \theta = \sqrt{2}$$

C) Find all values of θ with $-2\pi \leq \theta < 0$ for which

$$\sin \theta = -\frac{1}{2}$$

Trig Functions, Day 5

- Quiz
- Solving Trig Equations
- Finding ALL solutions to trig equations

Homework: Finding ALL Solutions to Equations

Speed Quiz Next Class

- Any angle $0 \leq \theta \leq 2\pi$
- All six trig functions

More Solutions

$$\csc(\theta) = -2$$

Solve over the interval $0 \leq \theta < 2\pi$

Solve instead over the interval $-2\pi \leq \theta < 0$

Solve instead over the interval $2\pi \leq \theta < 4\pi$

Solve instead over the interval $-2\pi \leq \theta < 4\pi$

Solve over the interval $-\pi \leq \theta < \pi$

$$5 \csc \theta - 10 = 0$$

$$8 \cot \theta - 3 = -3$$

Solve over the interval $0 \leq \theta < 6\pi$

$$14 \sin(\theta) + 2 = 9$$

Find ALL Solutions

$$\cos \theta = -\frac{1}{2}$$

A different way to word this question:

Let $f(\theta) = \cos \theta$. Find all input values in the domain of f that yield an output value of $-\frac{1}{2}$

Find ALL Solutions

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

A different way to word this question:

Let $m(\theta) = \sin \theta$. Find all input values in the domain of m that yield an output value of $\frac{\sqrt{2}}{2}$

$$-2 \tan \theta - 1 = 1$$

Solve over the interval $0 \leq \theta < 4\pi$

Write an expression that represents ALL solutions

A different way to word this question:

Let $g(\theta) = -2 \tan \theta - 1$. Find all input values in the domain of g that yield an output value of 1

First, solve over $0 \leq \theta < 2\pi$. Then, write an expression for ALL the solutions.

$$(2 \cos \theta - 1)(\sin \theta + 1) = 0$$

A different way to word this question:

Let $r(\theta) = (2 \cos \theta - 1)(\sin \theta + 1)$. Find all zeros of r in the interval $0 \leq \theta < 2\pi$. Then, find all zeros in the domain of r .

First, solve over $0 \leq \theta < 2\pi$. Then, write an expression for ALL the solutions.

$$(2 \sin \theta - 1)(\csc \theta + 2)(\tan \theta - 1) = 0$$

First, solve over $0 \leq \theta < 2\pi$. Then, write an expression for ALL the solutions.

$$(\sec \theta)^2 = 2$$