

Warm-up!

A) Find solutions on the interval $0 \leq \theta < 2\pi$

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

B) Find ALL solutions

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

C) Find ALL solutions

$$\sin(3\theta) = -\frac{1}{2}$$

D) Find ALL solutions

$$\sin\left(\theta - \frac{2\pi}{3}\right) = -\frac{1}{2}$$

Advanced Trig Day 3:
(3.10) Solving "multiple angle"
problems

Homework: Solving Multiple
Angle Equations + Review

Quiz in Two Weeks:

- Solving Trig Equations
- Solving Inverse Trig Equations
- Trig Identities
- Quiz is on Day 1 - Day 4

Find ALL solutions

$$\cos\left(x + \frac{\pi}{2}\right) = \frac{\sqrt{2}}{2}$$

Find ALL solutions

$$\tan(2x) = 1$$

Find ALL solutions.

Then list only the solutions in the interval $0 \leq \theta < 2\pi$

$$\cos(3\theta - \pi) = 1$$

All solutions:

Solutions in the interval $0 \leq \theta < 2\pi$:

Find an expression for all x -values at which $y = \sec\left(\frac{1}{3}x\right)$ has vertical asymptotes.

Find an expression for all x -values at which $y = \cot\left(x - \frac{\pi}{2}\right)$ has vertical asymptotes.

The function f is given by $f(\theta) = 2 \cos^2(2\theta) + 1$.

The function g is given by $g(\theta) = 3 \cos(2\theta)$.

Find an expression for all input values at which the graphs of f and g intersect.

Review of inverse trig equations

Solve each of the following:

$$\arctan(4x - 3) = -\frac{\pi}{4}$$

$$\sin^{-1}\left(\frac{x}{2}\right) = \arccos\left(\frac{1}{2}\right)$$

For each function, find an expression for the x -values of the vertical asymptotes.

$$f(x) = 3 \csc \left(x - \frac{\pi}{4} \right)$$

$$g(x) = \tan(4\pi x) - 2$$

Review of Advanced Trig Identities: Evaluate each of the following.

A) $\sin\left(\frac{\pi}{12}\right)\cos\left(\frac{\pi}{4}\right) - \cos\left(\frac{\pi}{12}\right)\sin\left(\frac{\pi}{4}\right)$

B) $1 - 2\sin^2\left(\frac{7\pi}{8}\right)$

C) $30\sin\left(\frac{3\pi}{8}\right)\cos\left(\frac{3\pi}{8}\right)$

Find an expression for ALL solutions

$$6 \sin^2(3x) + 5 = 8$$