

Happy Thursday, March 9th!

Do Now: (Homework Out!)

Find the zeros:

$$2x^2 - 7x + 6 = 0$$

$$(2x - 3)(x - 2) = 0$$

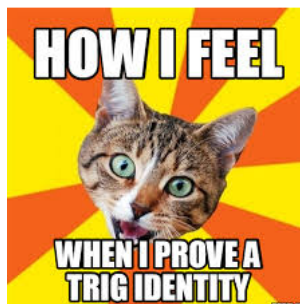
$$2x - 3 = 0$$

$$2x = 3$$

$$x = \frac{3}{2}$$

$$x - 2 = 0$$

$$x = 2$$



Mar 9-6:47 AM

Homework Questions?

$$\frac{1 - \tan^2 x}{1 + \tan^2 x} + 1$$

$$\frac{1 - \tan^2 x}{\sec^2 x} + \frac{\sec^2 x}{\sec^2 x}$$

$$= \frac{1 - \tan^2 x + \sec^2 x}{\sec^2 x}$$

$$\frac{1 - (\sec^2 x - 1) + \sec^2 x}{\sec^2 x}$$

$$= \frac{2}{\sec^2 x} = 2 \cos^2 x$$

Mar 9-6:55 AM

$$\frac{\sec x - \cos x}{3 \tan x \sin x}$$

S

$$\frac{\frac{1}{\cos x} - \frac{\cos^2 x}{\cos x}}{3 \frac{\sin^2 x}{\cos x}}$$

$$\frac{\frac{1 - \cos^2 x}{\cos x}}{3 \frac{\sin^2 x}{\cos x}}$$

$$\frac{\frac{\sin^2 x}{\cos x}}{3 \frac{\sin^2 x}{\cos x}}$$

$$\frac{\frac{\sin^2 x}{\cos x} \cdot \frac{\cos x}{\sin^2 x}}{3}$$

$$\frac{1}{3}$$

Mar 9-8:42 AM

- U6LT3 Inverse Trig
- U6LT4 Law of Sine/Cosine
- U7LT3 Modeling
- U8LT1 Proofs
- **U8LT2 Solving**
- U9LT3 and U9LT4

Optional next  
Thursday,  
March 16th

Mar 9-6:57 AM

## U8LT2 Solving Trigonometric functions

Mar 9-7:01 AM

Problems will look like...

$$\sin^2 x - \tan x \cos^2 x = 0$$

X =

Mar 9-7:40 AM

Strategies:  $\cos(x) \neq x \cos(?)$   $\sqrt{2} = 2\sqrt{1}$

- 1) Can you factor or simplify?
- 2) Is everything in terms of one trig function? (Not necessary, but most of the times it is).
- 3) Set each factor equal to zero and use your Unit Circle to find the solution(s).

Mar 9-7:58 AM

$\log_3$  —  
 $\sqrt{\quad}$   
 $\cos(\quad)$   
 $\tan$

Mar 9-8:55 AM

$$\sin^2 x - \tan x \cos^2 x = 0$$

$$\sin^2 x - \frac{\sin x}{\cos x} \cos^2 x = 0$$

$$\sin^2 x - \sin x \cos x = 0$$

$$\sin x (\sin x - \cos x) = 0$$

$$\sin x = 0$$

$$x = 0, \pi, 2\pi, 3\pi, 4\pi, 5\pi$$

$$\boxed{x = n\pi}$$

$$n \in \mathbb{N}$$

$$\sin x - \cos x = 0$$

$$\sin x = \cos x$$

$$\frac{\pi}{4}, \frac{5\pi}{4}$$

Mar 9-8:04 AM

$$2\sin^4 x - 2\cos^4 x = 1$$

$$2(\sin^4 x - \cos^4 x) = 1$$

$$2(\sin^2 x + \cos^2 x)(\sin^2 x - \cos^2 x) = 1$$

$$2(\sin^2 x - \cos^2 x) = 1$$

$$\times \cancel{2(\sin x + \cos x)(\sin x - \cos x) = 1}$$

$$2(\sin^2 x - (1 - \sin^2 x)) = 1$$

$$2\sin^2 x - 2(1 - \sin^2 x) = 1$$

$$2\sin^2 x - 2 + 2\sin^2 x = 1$$

$$4\sin^2 x - 3 = 0$$

$$\sin^2 x = \frac{3}{4}$$

$$x = \frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$$

$$\sin x = \pm \frac{\sqrt{3}}{2}$$

Mar 9-8:04 AM

On your homework:

Mar 9-8:09 AM

Exit Slip: Factor

$$\underline{\cos x} \sin^2 x - \underline{\cos x} \tan^2 x = 0$$

Homework: Worksheet 1

$$\cos x (\sin^2 x - \tan^2 x)$$

$$\cos x (\sin x - \tan x) (\sin x + \tan x) \quad \text{either!}$$

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

Mar 9-8:09 AM

Mar 9-8:17 AM