

Bell Work

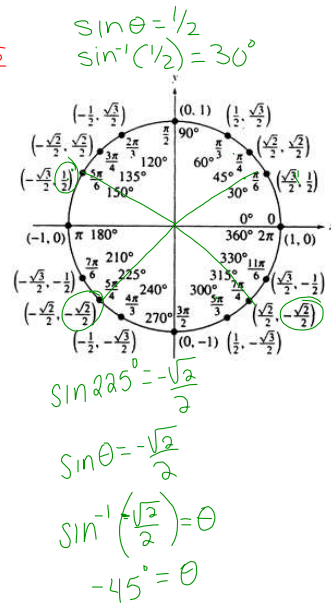
Identify the damping factor and tell whether the damping occurs as $x \rightarrow 0$ or as $x \rightarrow \infty$. *Neither*

$$f(x) = \pi^2 \cos \pi x$$

*damping factor
has to have a variable*

Evaluate:

1. $\csc 5\pi/4 = \frac{-2\sqrt{2}}{\sqrt{2}\sqrt{2}} = \frac{-2\sqrt{2}}{2} = -\sqrt{2}$
2. $\tan 0 = 0$
3. $\sin 270^\circ = -1$
4. $\cos 135^\circ = -\frac{\sqrt{2}}{2}$
5. $\sec 7\pi/6 = \frac{-2}{\sqrt{3}} = -\frac{2\sqrt{3}}{3}$
6. $\sin 225^\circ = \frac{-\sqrt{2}}{2}$
7. $\tan 11\pi/6 = \frac{-1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = -\frac{\sqrt{3}}{3}$
8. $\tan 90^\circ$ *undefined*
9. $\sin \pi/4 = \frac{\sqrt{2}}{2}$
10. $\cot 240^\circ = \frac{-1}{-\sqrt{3}} = \frac{\sqrt{3}}{3}$



Quiz 4.6 A

Name _____

Evaluate:

- 1) $\sin(30^\circ)$
- 2) $\cos(7\pi/6)$
- 3) $\cot(3\pi/4)$

Identify the damping factor and tell whether the damping occurs as $x \rightarrow 0$ or as $x \rightarrow \infty$.

$$4) y = 4e^{-x} \sin(4x-3)$$

Quiz 4.6 B

Name _____

Evaluate:

1) $\cos(30^\circ)$

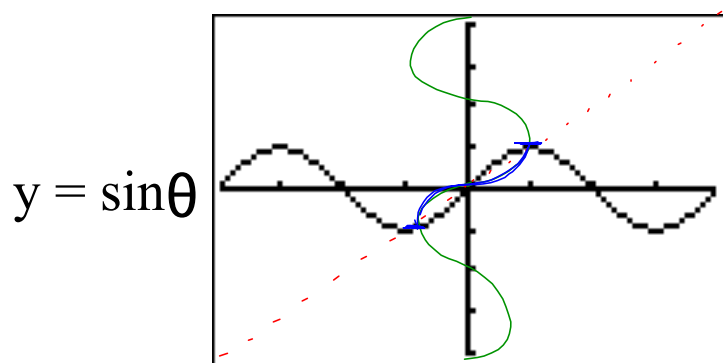
2) $\sin(7\pi/6)$

3) $\cot(\pi/4)$

Identify the damping factor and tell whether the damping occurs as $x \rightarrow 0$ or as $x \rightarrow \infty$.

4) $y = 4e^{-x}\sin(4x-3)$

Inverse Functions



What would the inverse look like?



Restrict the domain so it is one-to-one

$y = \sin\theta$ what is the input and output

Inverse

$y = \sin^{-1}\theta$ what is the input and output

Find the exact value:

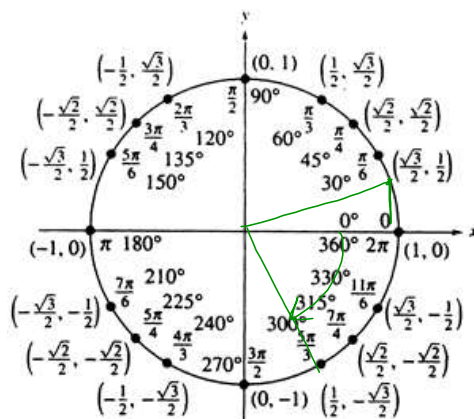
a) $\sin^{-1}(1/2) = 30^\circ, \pi/6$

b) $\sin^{-1}(-\sqrt{3}/2) = -60^\circ, 300^\circ$

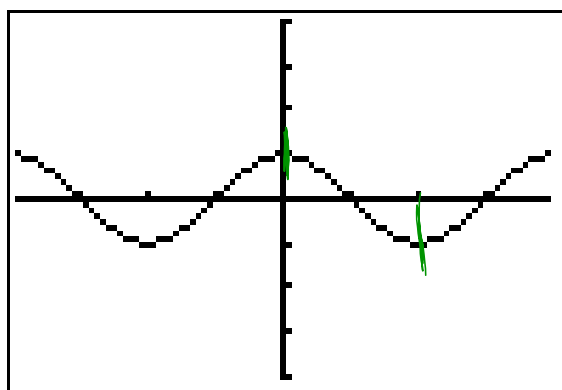
c) $\sin^{-1}(\pi/2) = \sin^{-1}(1.57) = \text{error}$
↑ side

d) $\sin^{-1}(\sin(\pi/9)) = \pi/9$

e) $\sin^{-1}(\sin(5\pi/6)) = \pi/6$



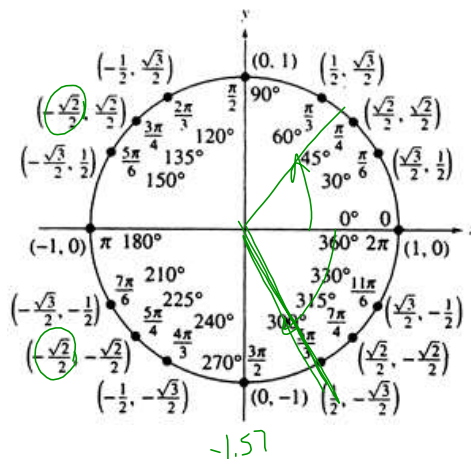
Inverse Cosine



what are the restrictions to make this one-to-one

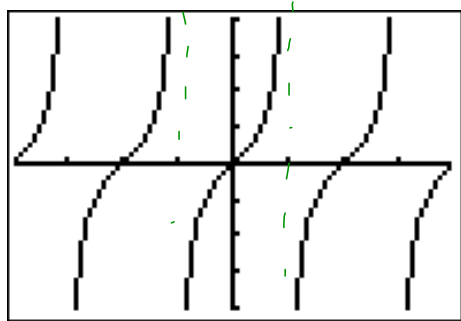
Find:

$$\cos^{-1}\left(-\frac{\sqrt{2}}{2}\right) = 135^\circ, \frac{3\pi}{4}$$



$$\cos^{-1}(\cos(\underbrace{-1.1}_{\text{angle}})) = 1.1$$

$$y = \tan x$$



What does the inverse look like?

Do we need to restrict to make one-to-one?

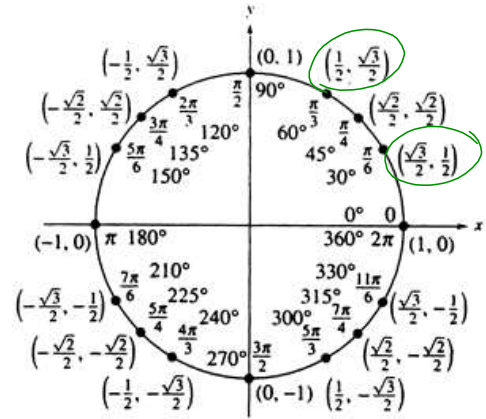
Find:

$$\tan^{-1} \sqrt{3} = \theta \quad 60^\circ \text{ or } \pi/3$$

Side

$$\tan^{-1}(-12.5) = -1.49$$

-85°



Find the exact value without a calculator.

$$\sin(\tan^{-1} 1)$$

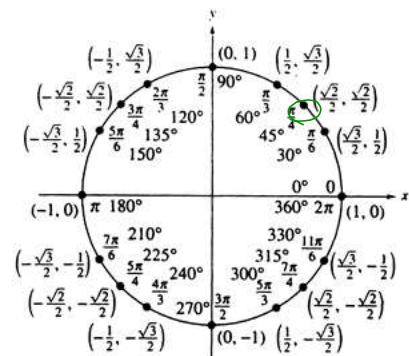
$$\sin 45^\circ = \frac{\sqrt{2}}{2}$$

$$\cos^{-1}(\cos 7\pi/4)$$

$$\cos^{-1}\left(\frac{\sqrt{2}}{2}\right) = \theta \quad \theta = 45^\circ \quad \frac{\pi}{4}$$

$$\sin(\tan^{-1}(-1))$$

$$\sin\left(\frac{7\pi}{4}\right) = -\frac{\sqrt{2}}{2}$$



Find an algebraic expression equivalent to the given expression.

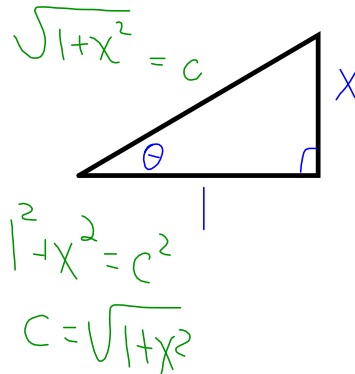
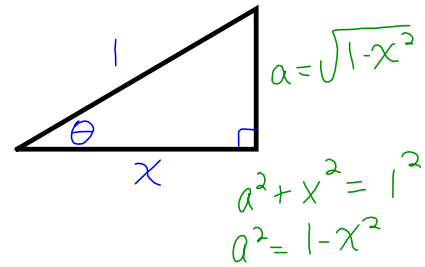
$$\cot(\arccos x)$$

$$\cot(\cos^{-1} x)$$

$$\cot \theta = \frac{x}{\sqrt{1-x^2}}$$

$$\cos(\tan^{-1} x)$$

$$\cos \theta = \frac{1}{\sqrt{1+x^2}} = \frac{\sqrt{1+x^2}}{1+x^2}$$



Assignment: Section 4.7

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EX: 1-31 odd, 41-55 odd, 59-61

skip 53