

Turn in your Graded HW with  
work stapled to the back.

GHW#13 due Feb 14, not 27

Jan 31-8:57 AM

*Inverse of Trig Functions*  
You will need a textbook for

the notes today

|               | $(1,0)$ | $0$ | $\frac{\pi}{6}$      | $\frac{\pi}{4}$      | $\frac{\pi}{3}$      | $(0,1)$ | $\frac{\pi}{2}$ |
|---------------|---------|-----|----------------------|----------------------|----------------------|---------|-----------------|
| $\sin \theta$ | 0       | 0   | $\frac{1}{2}$        | $\frac{\sqrt{2}}{2}$ | $\frac{\sqrt{3}}{2}$ | 1       |                 |
| $\cos \theta$ | 1       | 1   | $\frac{\sqrt{3}}{2}$ | $\frac{\sqrt{2}}{2}$ | $\frac{1}{2}$        | 0       |                 |
| $\tan \theta$ | 0       | 0   | $\frac{\sqrt{3}}{3}$ | 1                    | $\sqrt{3}$           | und     |                 |



Dec 20-9:05 AM

What is x?What is y?

$$y = \sin(x)$$

angle

trig value



$$y = \sin^{-1}(x)$$

trig value

angle

$$y = \sin^{-1}(0)$$

Feb 4-4:13 PM

## 6.4 Inverse of Trig Functions

Pg 560 - 561

PreC  
Ch 8 Dc

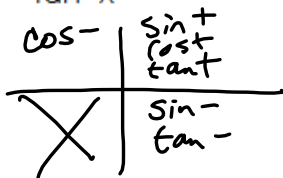
Look at pictures in Text, pg 560 - 561



$$y = \sin^{-1}x$$

$$y = \cos^{-1}x$$

$$y = \tan^{-1}x$$



range:

$$-\frac{\pi}{2} \leq y \leq \frac{\pi}{2}$$

$$0 \leq y \leq \pi$$

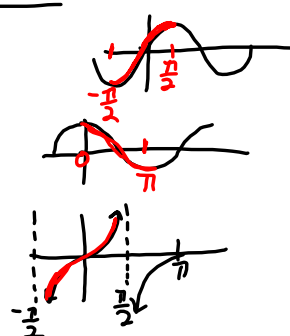
$$-\frac{\pi}{2} < y < \frac{\pi}{2}$$

Quadrants

I, IV

I, II

I, IV

Sketch

Jan 19-8:42 AM

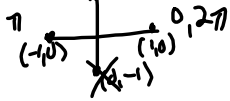
Find the exact value, in radians:

~~I+, IV-~~

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

$\alpha = \frac{\pi}{3} \rightarrow \text{IV}$   
 $2\pi - \frac{\pi}{3} = \frac{5\pi}{3}$

3. ~~I+, IV-~~  $\tan^{-1}(0) = 0$



5.  $\sec^{-1}(-2)$   $\sec \theta = \frac{1}{\cos \theta}$   
 $\cos \theta = \left(-\frac{1}{2}\right)$   $\text{I}+, \text{II}-$   
 $\alpha = \frac{\pi}{3}$   $\frac{3\pi}{3}$   
 $= \frac{2\pi}{3}$

~~I+, II-~~

2.  $\cos^{-1}\left(\frac{\sqrt{2}}{2}\right) = \frac{\pi}{4}$

$\alpha = \frac{\pi}{4}$

4.  $\csc^{-1}(\sqrt{2})$   $\csc \theta = \frac{1}{\sin \theta}$   
 $\sin^{-1}\left(\frac{1}{\sqrt{2}}\right) = \sin^{-1}\left(\frac{\sqrt{2}}{2}\right)$   
 $= \frac{\pi}{4}$

~~sin+I  
sin-IV~~

Jan 19-8:44 AM

Evaluate. Exact values. Leave answers in terms of  $\pi$  or in simplest radical form.

6.  $\sin^{-1}\left(\cos \frac{\pi}{6}\right)$

$= \sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$  ~~I+, II-~~  
 $= \frac{\pi}{3}$

7.  $\sin\left(\tan^{-1}\frac{\sqrt{3}}{3}\right)$  ~~I+, IV-~~

$= \sin\left(\frac{\pi}{6}\right) = \frac{1}{2}$

Jan 19-8:45 AM

8.  $\tan^{-1}\left(\tan\frac{2\pi}{3}\right)$

$= \tan^{-1}(-\sqrt{3})$

$= \cancel{\frac{\pi}{3}} \text{ or } -\frac{\pi}{3}$

$\text{II, } \tan^{-1}$

$\alpha = \pi/3$

$\text{I, } \tan^{-1}$

$\alpha = \pi/3$



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

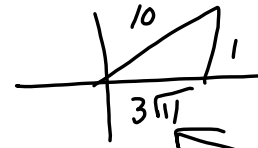
$= \tan$

 $\text{I} \rightarrow$ 

$.1 = \frac{1}{10}$

$\tan = \frac{O}{A}$

$\frac{1}{3\sqrt{11}} = \frac{\sqrt{11}}{33}$



$1^2 + b^2 = 10^2$

$b^2 = 100 - 1$

$b^2 = 99$

$b = \sqrt{99} = \sqrt{9 \cdot 11}$

$b = 3\sqrt{11}$

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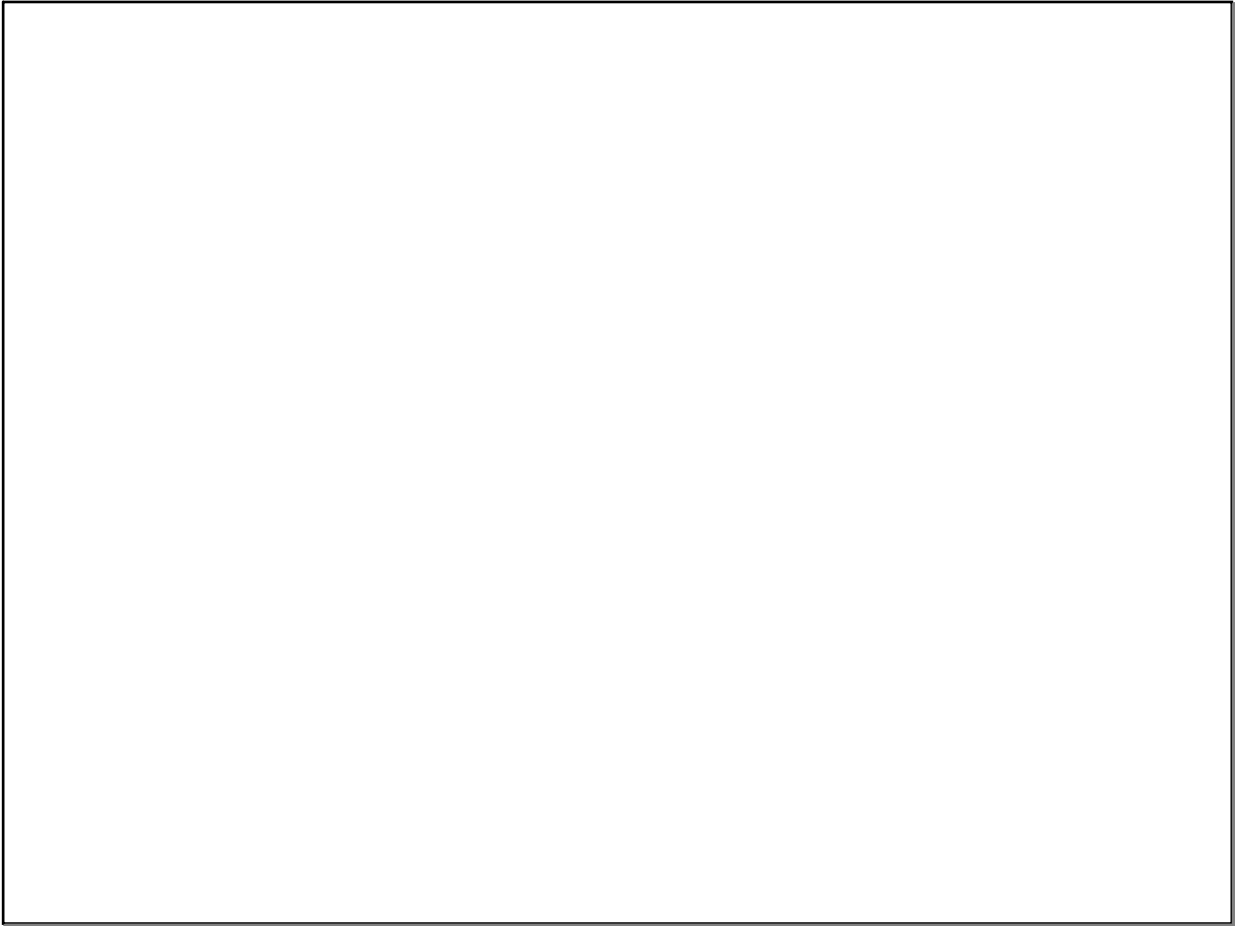
Homework: Pp. 570 - 571

# 2, 6, 10, 14, 18 (radians only),

# 46 - 54 even



Jan 3-10:31 AM



Jan 19-3:54 PM