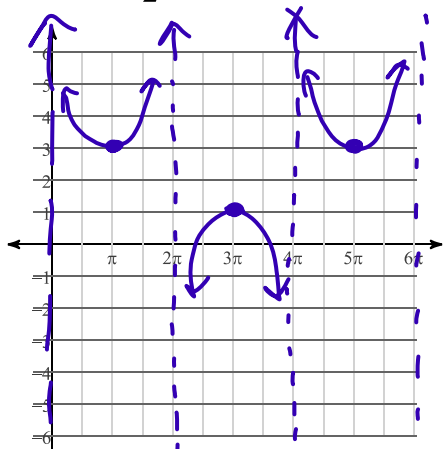


Graphing and More Review Notes

Graph each function using radians.

1)  $y = \csc \frac{\theta}{2} + 2$

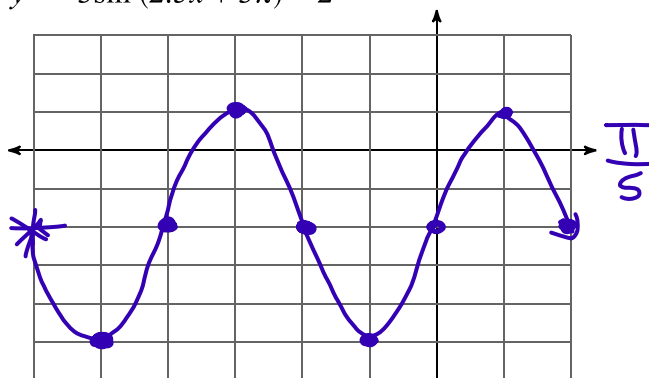


Period =  $\frac{2\pi}{1/2} = 4\pi$

mid  
min  
mid  
max  
mid

$y = -3\sin 2.5(x + \frac{6\pi}{5}) - 2$

2)  $y = -3\sin(2.5x + 3\pi) - 2$



$3 - 2 = 1 \rightarrow \frac{3}{1} \quad \frac{2}{5} \rightarrow \frac{6}{5}$

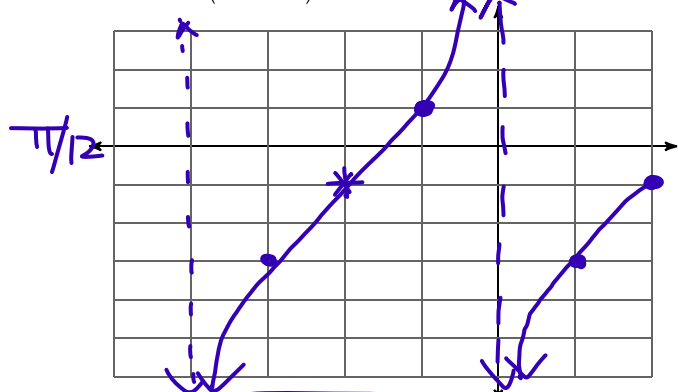
Period  $\rightarrow \frac{2\pi}{5/2} \rightarrow 2\pi \cdot \frac{2}{5} = \frac{4\pi}{5}$

Count by  $\frac{4\pi/5}{4} = \frac{\pi}{5}$

Hor shift  $\rightarrow \frac{6\pi}{5}$  Left

3)  $y = 2\tan(3x + \frac{\pi}{2}) - 1$

$y = 2\tan 3(x + \frac{\pi}{6}) - 1$



Period  $\cdot \frac{\pi}{3}$

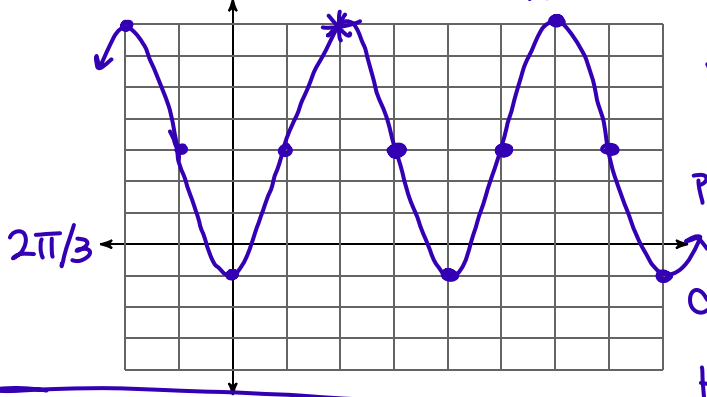
Count by  $\frac{\pi/3}{4} = \frac{\pi}{12}$

Horizontal shift  $\cdot \frac{\pi}{6}$  Left

tan pattern 0, 1, asym, -1, 0

4)  $y = 4\cos(0.75x - \pi) + 3$

$\frac{-1}{75} = -1 \cdot \frac{4}{3} = -\frac{4}{3}$



$y = 4\cos.75\left(x - \frac{4\pi}{3}\right) + 3$

Period  $\frac{2\pi}{3/4} = \frac{8\pi}{3}$

Count by  $\frac{8\pi/3}{4} = \frac{2\pi}{3}$

Horiz shift  $\frac{4\pi}{3}$  right

cos  $\theta \rightarrow$  max, mid, min, mid, max

Find the exact value of each expression.

5)  $\tan^{-1}(-\sqrt{3})$   
 $-\frac{\pi}{3}$

6)  $\sin^{-1} - \frac{\sqrt{3}}{2}$   $-\frac{\pi}{3}$

7)  $\cos^{-1} - \frac{\sqrt{3}}{2}$   
 $\frac{5\pi}{6}$

8)  $\cot^{-1} - \frac{\sqrt{3}}{3}$   
 $\frac{2\pi}{3}$

9)  $\cot^{-1} 1$   
 $\frac{\pi}{4}$

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

$$11) \sin^{-1} \frac{\pi}{3} \text{ undefined}$$

$$12) \cot \sec^{-1} 2$$

$\uparrow \cos^{-1}(\frac{1}{2})$   
 $\downarrow$   
 $\cot(\frac{\pi}{3})$   
 $= \frac{\sqrt{3}}{3}$

$$13) \csc \cot^{-1} \frac{3\sqrt{91}}{91} \rightarrow \frac{3}{\sqrt{91}}$$



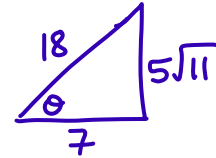
$$9 + 91 = c^2$$

$$c = 10$$

$$\csc \theta = \frac{10}{\sqrt{91}} \text{ or } \frac{10\sqrt{91}}{91}$$

$$15) \csc^{-1} \left( \tan \frac{\pi}{4} \right)$$

$$14) \sin \sec^{-1} \frac{18}{7}$$



$$7^2 + y^2 = 18^2$$

$$y^2 = 324 - 49$$

$$y^2 = 275 = 25 \cdot 11 \quad y = 5\sqrt{11}$$

$$\sin \theta = \frac{5\sqrt{11}}{18}$$

$$16) \tan^{-1} \left( \csc - \frac{\pi}{2} \right)$$

$$17) \cot^{-1} \left( \tan - \frac{\pi}{4} \right)$$

$$18) \sin \cot^{-1} \frac{2}{5}$$

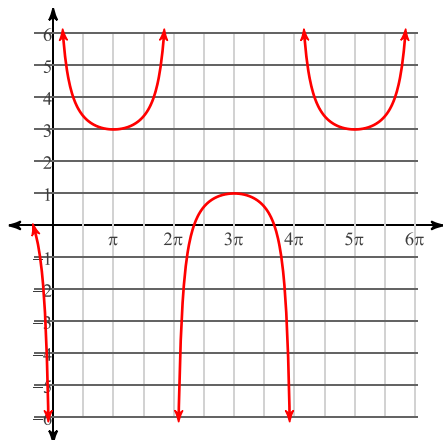
$$19) \cos \sin^{-1} x$$

$$20) \sec \cos^{-1} x$$

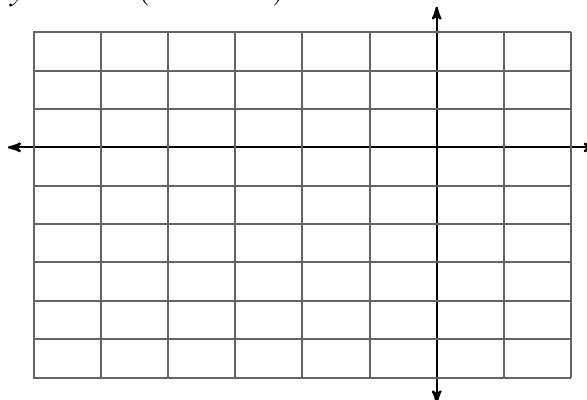
# Graphing and More Review Notes

Graph each function using radians.

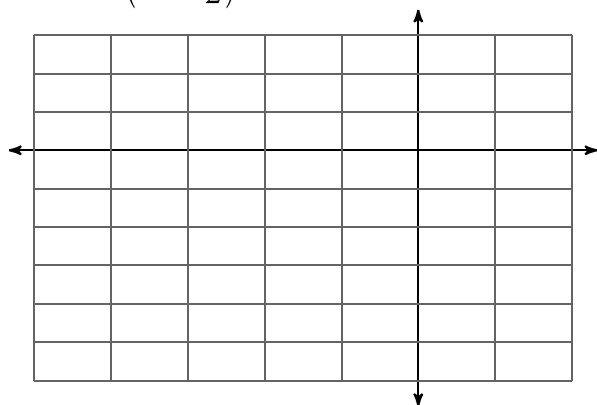
1)  $y = \csc \frac{\theta}{2} + 2$



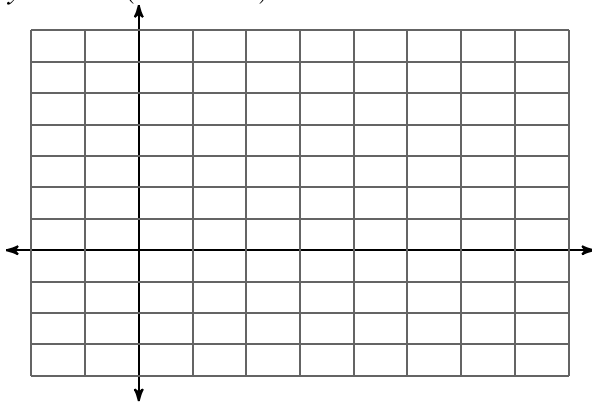
2)  $y = -3\sin(2.5x + 3\pi) - 2$



3)  $y = 2\tan\left(3x + \frac{\pi}{2}\right) - 1$



$$4) y = 4\cos(0.75x - \pi) + 3$$



**Find the exact value of each expression.**

$$5) \tan^{-1}(-\sqrt{3})$$

$$-\frac{\pi}{3}$$

$$6) \sin^{-1} - \frac{\sqrt{3}}{2}$$

$$-\frac{\pi}{3}$$

$$7) \cos^{-1} - \frac{\sqrt{3}}{2} \quad \frac{5\pi}{6}$$

$$8) \cot^{-1} - \frac{\sqrt{3}}{3}$$

$$\frac{2\pi}{3}$$

$$9) \cot^{-1} 1$$

$$\frac{\pi}{4}$$

$$10) \csc^{-1} \frac{2\sqrt{3}}{3}$$

$$\frac{\pi}{3}$$

11)  $\sin^{-1} \frac{\pi}{3}$

undefined (because  $\pi/3$  is bigger than 1)

12)  $\cot \sec^{-1} 2$

$$\frac{\sqrt{3}}{3}$$

13)  $\csc \cot^{-1} \frac{3\sqrt{91}}{91}$

$$\frac{10\sqrt{91}}{91}$$

14)  $\sin \sec^{-1} \frac{18}{7}$

$$\frac{5\sqrt{11}}{18}$$

15)  $\csc^{-1} \left( \tan \frac{\pi}{4} \right)$

$$\frac{\pi}{2}$$

16)  $\tan^{-1} \left( \csc - \frac{\pi}{2} \right)$

$$-\frac{\pi}{4}$$

17)  $\cot^{-1} \left( \tan - \frac{\pi}{4} \right)$

$$\frac{3\pi}{4}$$

18)  $\sin \cot^{-1} \frac{2}{5}$

$$\frac{5\sqrt{29}}{29}$$

19)  $\cos \sin^{-1} x$   
 $\sqrt{1-x^2}$

20)  $\sec \cos^{-1} x$   $\frac{1}{x}$