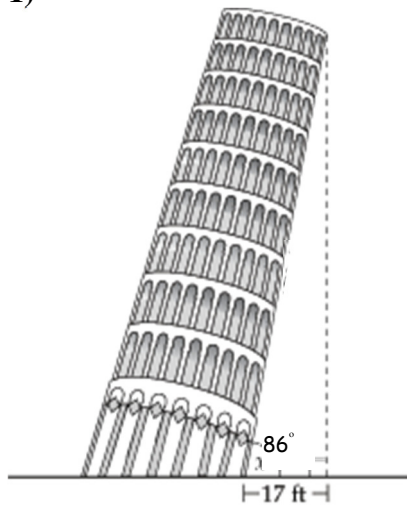


Trigonometry/PreCalculus  
 Chapter 4 Test Review  
 Day \_\_\_\_\_

Name \_\_\_\_\_  
 Date \_\_\_\_\_  
 Block \_\_\_\_\_

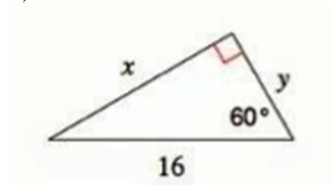
1)



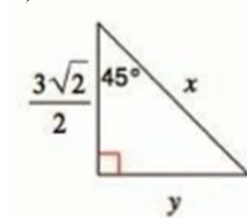
The Leaning Tower of Pisa now leans at an  $86^\circ$  degree angle with the horizontal. How tall would the Tower be if it did not lean?

2) Find the missing side of each triangle. Leave each value in simplified radical form when applicable.

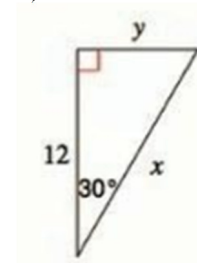
a)



b)



c)



3) Rationalize the denominator for each expression. Simplify completely.

a)  $\frac{6}{5\sqrt{2}}$

b)  $\frac{4}{2\sqrt{3}-8}$

c)  $\frac{10-\sqrt{5}}{2+\sqrt{5}}$

Convert the following from degrees to radians.

4)  $36^\circ$

5)  $-320^\circ$

Convert the following from radians to degrees.

6)  $\frac{\pi}{15}$

7)  $-\frac{17\pi}{20}$

Use a calculator to find the value of secant, cosecant and cotangent of  $115^\circ$ . Write the ratio you used and round to 3 decimal places.

8)  $\sec 115^\circ$

9)  $\csc 115^\circ$

10)  $\cot 115^\circ$

11) Find the **exact** value of the six trigonometric functions for each of the given values. Remember to simplify each value completely.

	a) $\frac{5\pi}{6}$	b) $-\frac{5\pi}{3}$	c) $\frac{5\pi}{4}$
sin			
cos			
tan			
csc			
sec			
cot			

12) If  $\cos\theta = -\frac{3}{5}$  and  $\sin\theta < 0$ , find the exact values of the other five trig functions. Show your work.

13) If  $\sec\theta = \frac{6}{5}$ ,  $\tan\theta < 0$ , find the exact values of the other five trig functions. Show your work.

14) a) State the quadrant in which the terminal side of  $\theta$  lies if  $\cot \theta < 0$  and  $\sin \theta > 0$ .

15) b) State the quadrant in which the terminal side of  $\theta$  lies if  $\csc \theta < 0$  and  $\tan \theta > 0$ .

16) Are  $\frac{29\pi}{4}$  and  $\frac{5\pi}{4}$  coterminal angles? Explain why or why not.

17) Find the sine of each angle below. (Use coterminal angles to help you.)

a)  $\sin \frac{11\pi}{3}$

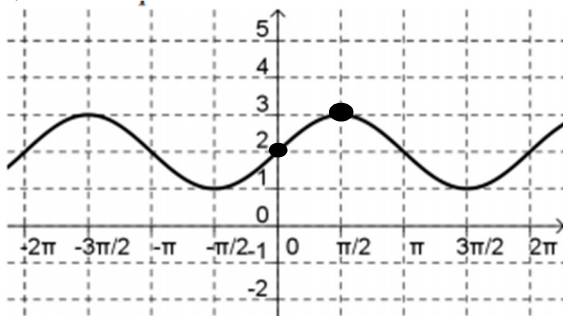
b)  $\sin \frac{21\pi}{6}$

18) Write an equation for a cosine function shifted up 4 and right  $\frac{\pi}{3}$ , with a period of  $\frac{3\pi}{4}$  and amplitude 7.

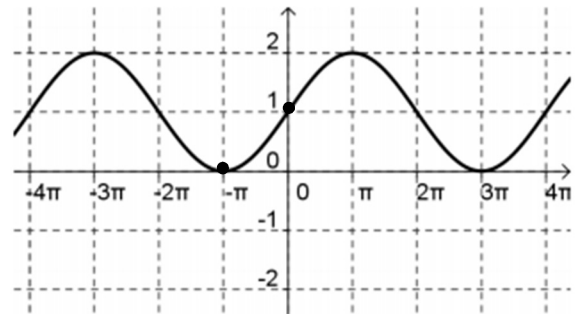
19) Write an equation for a sine function with amplitude 4, shifted left  $\frac{\pi}{6}$  with period of  $\frac{2\pi}{3}$ .

Write an equation for each sinusoidal curve in terms of sine and cosine using the indicated points.

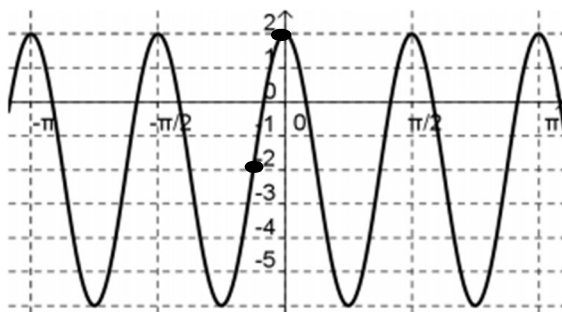
20)



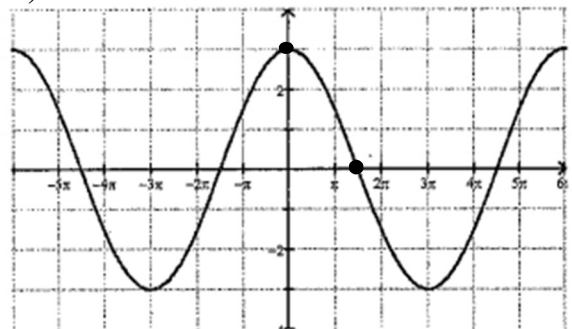
21)



22)

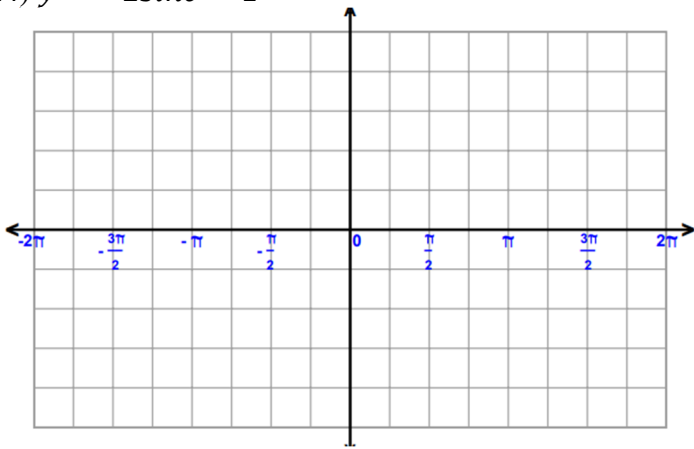


23)

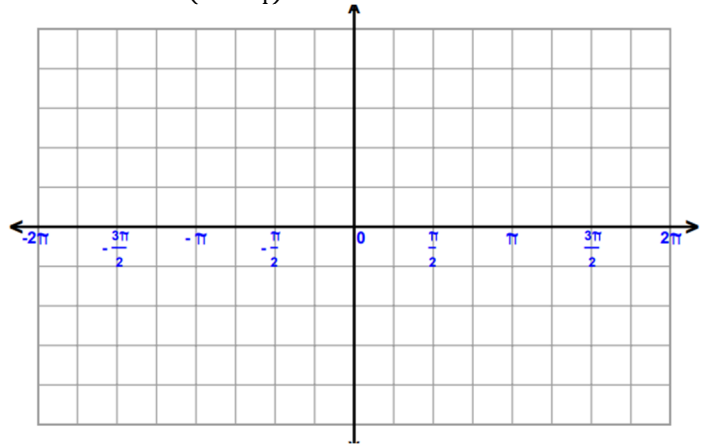


Graph 2 cycles (if possible) of each of the following functions:

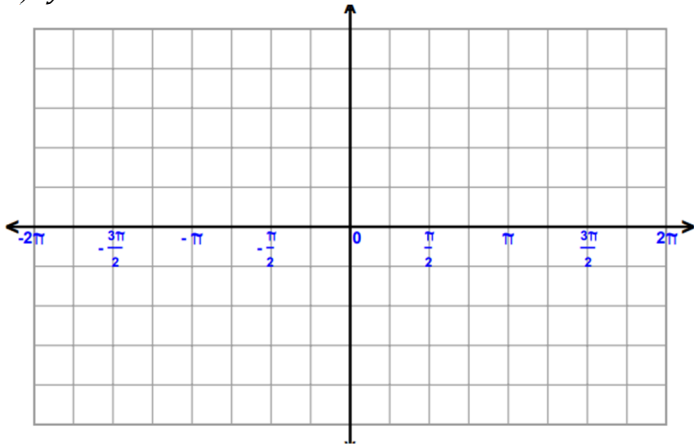
24)  $y = -2\sin\theta - 1$



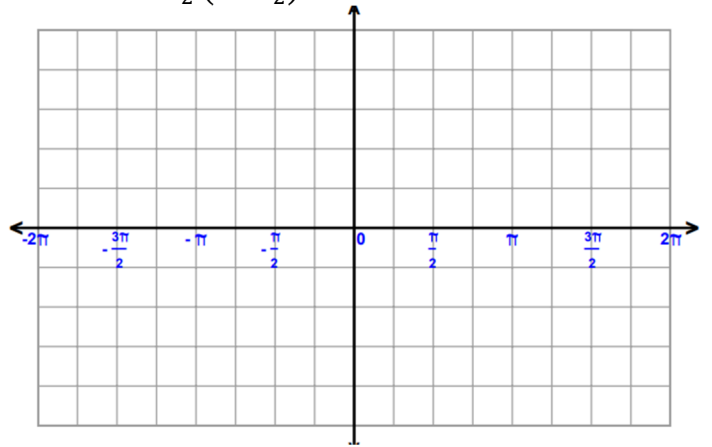
25)  $y = 3\cos\left(\theta - \frac{\pi}{4}\right) + 2$



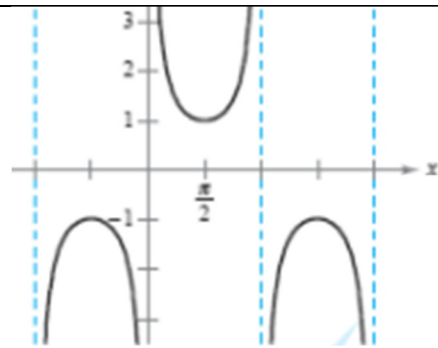
26)  $y = 2\sin 4\theta$



27)  $y = 4\cos\frac{1}{2}\left(\theta + \frac{\pi}{2}\right)$



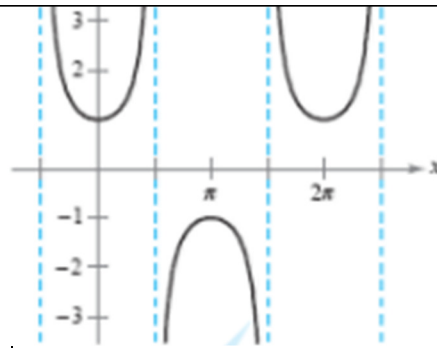
Name each of the following functions. Then state the domain and range for each.



28)  $y = \underline{\hspace{2cm}}$

Domain=  $\underline{\hspace{2cm}}$

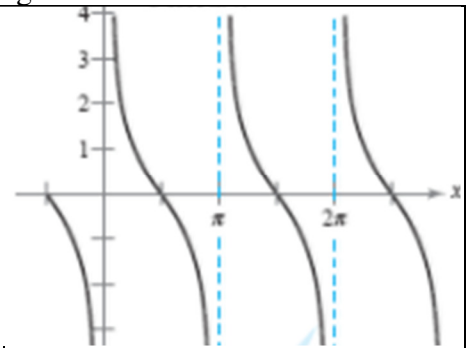
Range=  $\underline{\hspace{2cm}}$



29)  $y = \underline{\hspace{2cm}}$

Domain=  $\underline{\hspace{2cm}}$

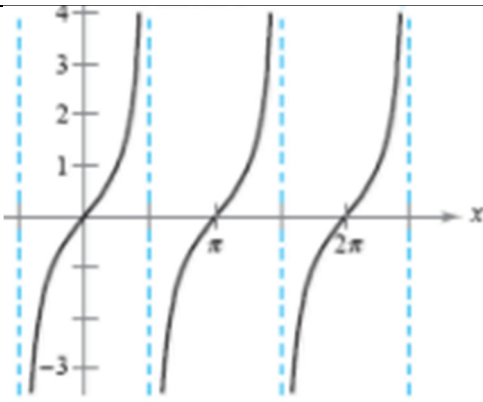
Range=  $\underline{\hspace{2cm}}$



30)  $y = \underline{\hspace{2cm}}$

Domain=  $\underline{\hspace{2cm}}$

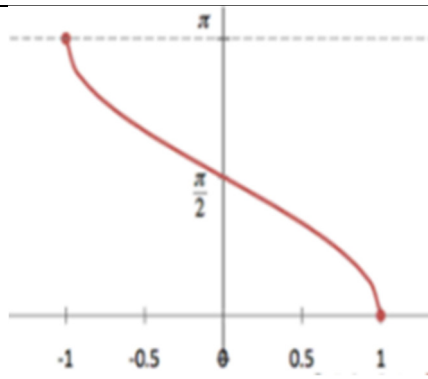
Range=  $\underline{\hspace{2cm}}$



31)  
 $y = \underline{\hspace{2cm}}$

Domain=  $\underline{\hspace{2cm}}$

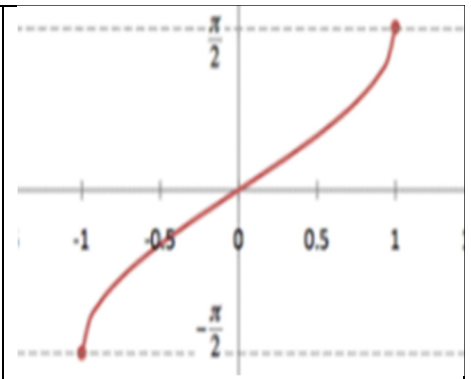
Range=  $\underline{\hspace{2cm}}$



32)  
 $y = \underline{\hspace{2cm}}$

Domain=  $\underline{\hspace{2cm}}$

Range=  $\underline{\hspace{2cm}}$



33)  
 $y = \underline{\hspace{2cm}}$

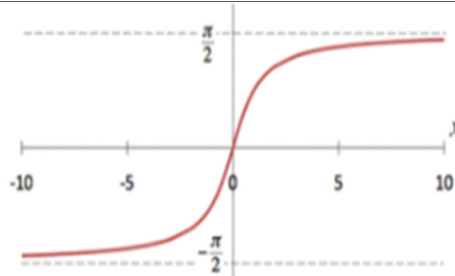
Domain=  $\underline{\hspace{2cm}}$

Range=  $\underline{\hspace{2cm}}$

34)  
 $y = \underline{\hspace{2cm}}$

Domain=  $\underline{\hspace{2cm}}$

Range=  $\underline{\hspace{2cm}}$



Evaluate each expression:

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

36)  $\arctan -1$

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

38)  $\csc\left(\cos^{-1} \frac{1}{2}\right)$

Solve each of the following trigonometric equations.

39)  $\tan^2 x - 1 = 0$

40)  $(\sec x - 2)(2\cos x - 1) = 0$