

Review for Test #5
4.5-4.7

Name _____
Date _____ Period _____

Find the following for each given equation.

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

Period _____ range _____

Asy Equation _____

3 con asy _____

3. $y = 4 \tan(3(x + \pi)) - 5$

Period _____ range _____

Domain _____

3 con asy _____

2. $y = \sec\left(\frac{1}{4}\left(x + \frac{\pi}{2}\right)\right) - 2$

Period _____ range _____

Domain _____

3 con asy _____

4. $y = -5 \cot\left(\frac{1}{2}\left(x + \frac{\pi}{3}\right)\right) - 1$

Period _____ range _____

Asy Equation _____

3 con asy _____

Provide the following information, then sketch the graph.

5. $y = -2 \sec(2x - 2\pi) - 5$

Period _____ range _____

Horizontal phase shift _____

Asy Equation _____

3 con asy _____

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

Period _____ range _____

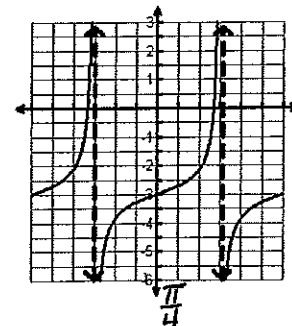
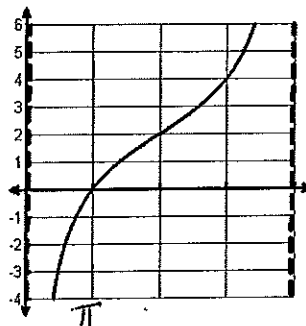
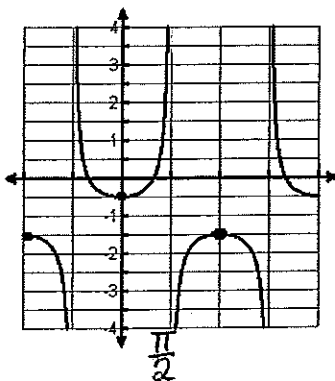
Horizontal phase shift _____

Domain _____

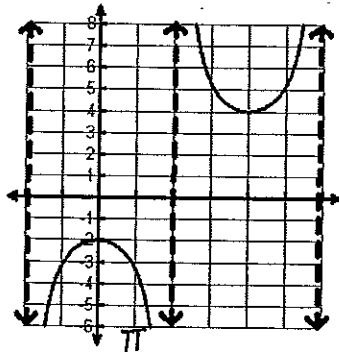
3 con asy _____

Write the equations for the following graphs.

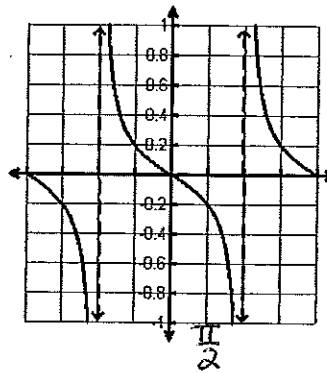
10. $y =$ _____ 11. $y =$ _____ 12. $y =$ _____



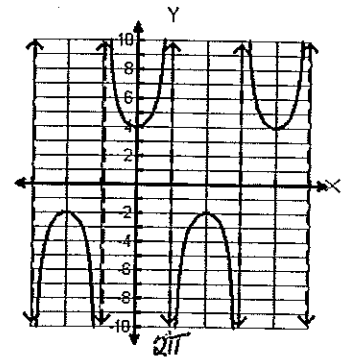
13. $y =$ _____



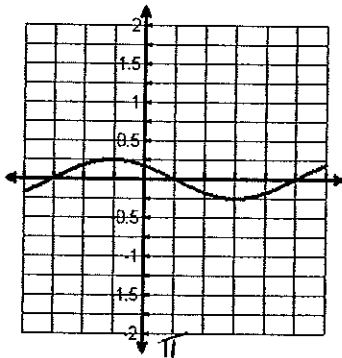
14. $y =$ _____



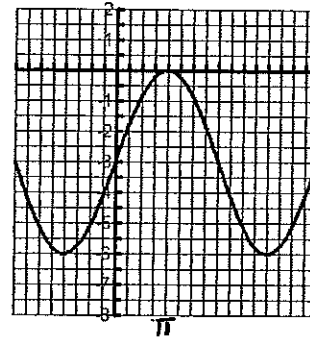
15. $y =$ _____



16. $y =$ _____



17. $y =$ _____



Determine the exact value of each expression. No decimals! All angle should be in radians in terms of π .

18. $\cos^{-1}\left(-\frac{1}{2}\right) =$ _____

19. $\tan\left(\arcsin\left(-\frac{1}{\sqrt{2}}\right)\right) =$ _____

20. $\sin^{-1}\left(\sin\left(\frac{7\pi}{6}\right)\right) =$ _____

21. $\arccos\left(\sin\left(-\frac{\pi}{4}\right)\right) =$ _____

22. $\csc\left(\tan^{-1}(0)\right) =$ _____

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

24. $\sin^{-1}\left(\cos\left(\frac{\pi}{2}\right)\right) =$ _____

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

26. $\sin^{-1}\left(-\frac{1}{2}\right) =$ _____

27. $\arcsin(\cos \pi) =$ _____

28. $\cot\left(\sin^{-1}\left(-\frac{7}{25}\right)\right) =$ _____

29. $\csc\left(\tan^{-1}(-6)\right) =$ _____

30. $\cot\left(\tan^{-1}\left(\frac{3}{4}\right)\right) =$ _____

31. $\sin^{-1}\left(\cos\left(-\frac{\pi}{3}\right)\right) =$ _____

III. Use a calculator to evaluate the expression. Round to the nearest hundredth.

32. $\arccos(-.524)$ _____

33. $\arcsin(.378)$ _____

34. $\tan^{-1}(-6.75)$ _____

35. $\sin^{-1}(.545)$ _____

36. $\arctan(-2.962)$ _____

37. $\cos^{-1}(-3.781)$ _____

Round answers to three decimal places.

38. A weight attached to the end of a long spring is bouncing up and down. As it bounces, its distance from the floor varies sinusoidally with time. You start a stopwatch. When the stopwatch reads .9 seconds, the weight first reaches a low point 12 cm above the floor. The next high point, 42 cm above the floor, occurs at 2.5 seconds.

Sketch the graph.

- a. Write an equation expressing distance from the floor in terms of the number of seconds the stopwatch reads.

- b. Predict the distance from the floor when the stopwatch reads 13.6 seconds?

- c. At what time will the spring be 24 cm for the third time?

39. A waterwheel with a radius of 12 feet is positioned so that its center is 3 feet above the water. The waterwheel rotates at 4 revolutions per minute. You start your stopwatch. Three seconds later, Point P on the rim is at its greatest height.

Sketch the graph.

- a. Write an equation assuming y varies sinusoidally with t , where y is the distance of point P from the surface of the water in terms of the number of t seconds that the stopwatch reads.

- b. What distance from the water will point P be after 23 seconds?

- c. What time will the point on the wheel enter the water for the second time?

