Practice Test 4.5-4.8

Date_____ Period____ Score_____

Find the exact value of each expression.

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

2) $\sin^{-1} 0$

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

4) $\cos^{-1} -1$

5) $\tan^{-1} 0$

6) $\tan^{-1} \left(-\sqrt{3}\right)$

7) $\cos^{-1} 0$

8) $\cos^{-1} -\frac{\sqrt{2}}{2}$

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

10) $\tan^{-1} \sqrt{3}$

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

12) $\cos^{-1} \left(\tan 0\right)$

13) $\csc \sin^{-1} \frac{4}{5}$

14) $\tan \cos^{-1} \frac{3}{5}$

15) $\sec \cos^{-1} \frac{4\sqrt{17}}{17}$

16) $\tan^{-1} \left(\cos 0\right)$

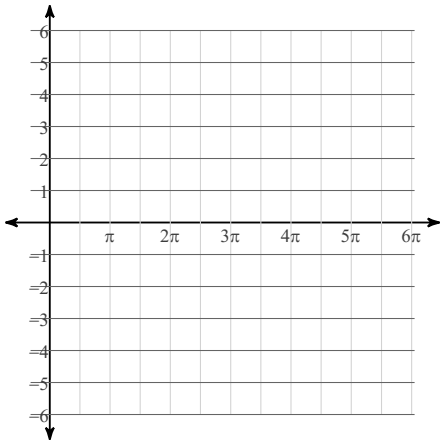
Write each trigonometric expression as an algebraic expression.

17) $\cot \sin^{-1} x$

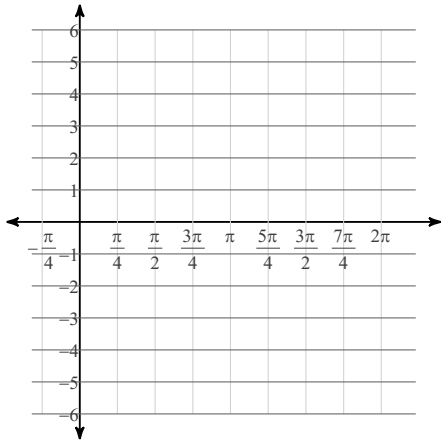
18) $\csc \sin^{-1} x$

Find the amplitude, the period in radians, and the vertical shift. Then sketch the graph using radians.

19) $y = 2\sin\dfrac{\theta}{2} - 1$

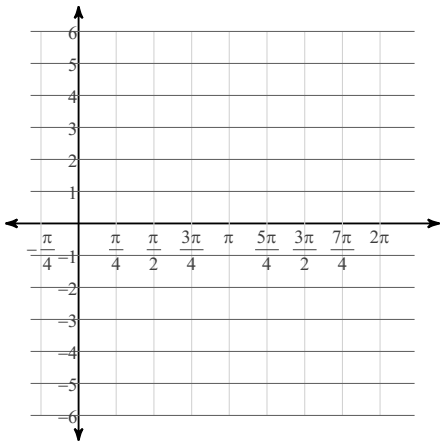


20) $y = 2 + 2\cos 3\theta$

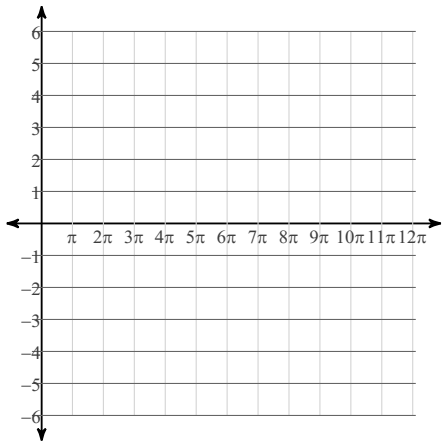


Find the amplitude, the period in radians, the phase shift in radians, and the vertical shift. Then sketch the graph using radians.

21) $y = 4\sin\left(3\theta - \dfrac{\pi}{2}\right) - 2$

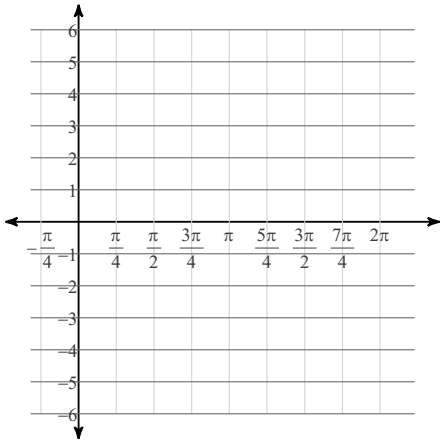


22) $y = 3\cos\left(\dfrac{\theta}{4} + \dfrac{7\pi}{4}\right) + 2$

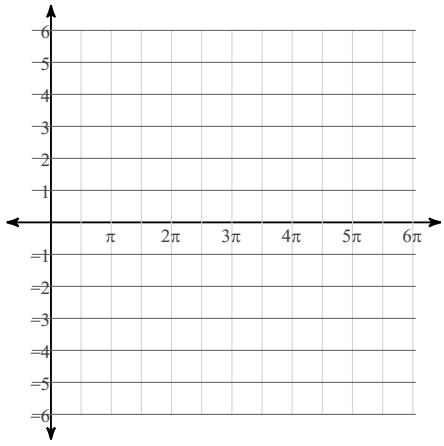


Find the amplitude, the period in radians, and the vertical shift. Then sketch the graph using radians.

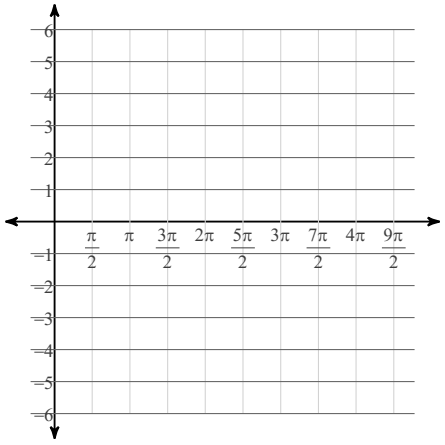
23) $y = 2 + 3\csc 2\theta$



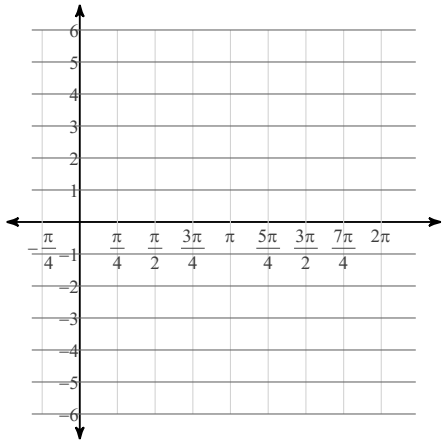
24) $y = \sec \frac{\theta}{2} - 1$



25) $y = 2\cot \frac{\theta}{3}$



26) $y = 4\tan \theta$



27) An observer in a ship notices the top of the lighthouse to be an angle of elevation of 20 degrees. If the lighthouse is 225 feet above sea level, how far is the ship to the lighthouse? Round to the nearest whole number.

28) A ship sails 60 miles east and 20 miles south of a port. The captain wants to sail directly to the port. What bearing should be taken? Round to the nearest tenth.

29) If a ship sails at S 51 degrees W for 50 miles, how far West did the ship travel. Round your answer to the nearest tenth.

30) You observe a plane approaching overhead and assume that its speed is 450 mph. The angle of elevation of the plane is 10 degrees at one time and 35 degrees on minute later. Approximate the altitude of the plane. Round to two decimal places.

Answers to Practice Test 4.5-4.8 (ID: 1)

1) $-\frac{\pi}{2}$

2) 0

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

4) π

5) 0

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

7) $\frac{\pi}{2}$

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

9) $\frac{\pi}{2}$

10) $\frac{\pi}{3}$

11) $-\frac{\pi}{2}$

12) $\frac{\pi}{2}$

13) $\frac{5}{4}$

14) $\frac{4}{3}$

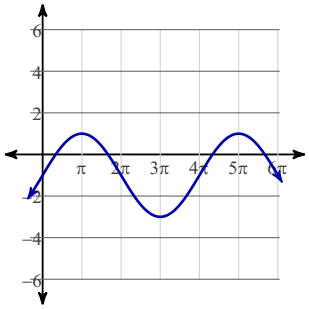
15) $\frac{\sqrt{17}}{4}$

16) $\frac{\pi}{4}$

17) $\frac{\sqrt{1-x^2}}{x}$

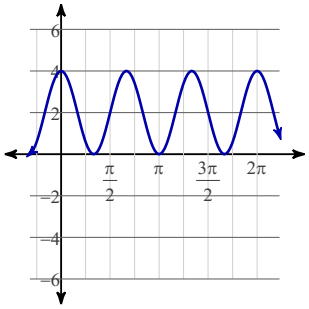
18) $\frac{1}{x}$

19)



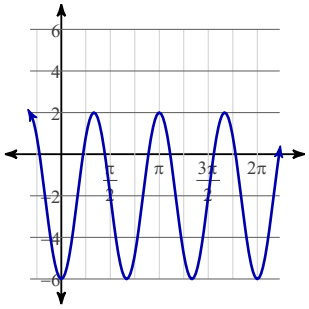
Amplitude: 2
Period: 4π
Vert. shift: Down 1

20)



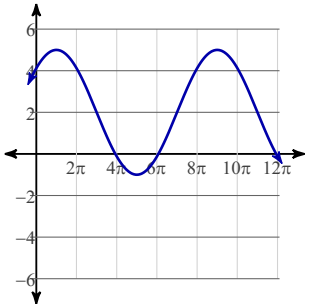
Amplitude: 2
Period: $\frac{2\pi}{3}$
Vert. shift: Up 2

21)



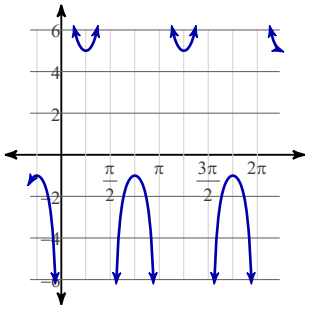
Amplitude: 4
Period: $\frac{2\pi}{3}$
Phase shift: Right $\frac{\pi}{6}$
Vert. shift: Down 2

22)



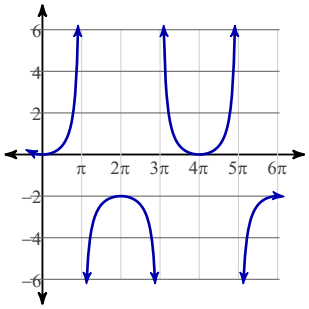
Amplitude: 3
Period: 8π
Phase shift: Left 7π
Vert. shift: Up 2

23)



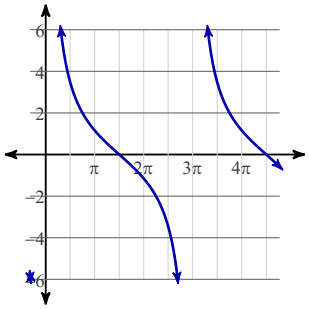
Amplitude: None
Period: π
Vert. shift: Up 2

24)



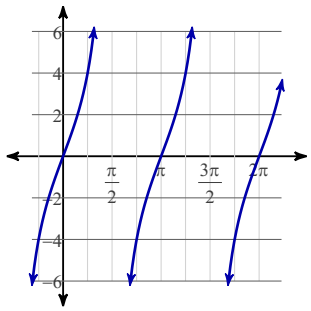
Amplitude: None
Period: 4π
Vert. shift: Down 1

25)



Amplitude: None
Period: 3π
Vert. shift: None

26)



Amplitude: None
Period: π
Vert. shift: None

27) 618 feet

28) N 71.6 degrees W

29) 38.9 miles

30) 2.52 miles