

Find the exact value of the following:

1.  $\sin 30^\circ$

$\frac{1}{2}$

2.  $\cos 2\pi$

1

3.  $\sin 60^\circ$

$\frac{\sqrt{3}}{2}$

4.  $\cos 60^\circ$

$\frac{1}{2}$

5.  $\sin 315^\circ$

$-\frac{\sqrt{2}}{2}$

6.  $\tan \frac{7\pi}{6}$

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

7.  $\tan 90^\circ$

undef

8.  $\tan(-225^\circ)$

-1

9.  $\sec 240^\circ$

-2

10.  $\sin \frac{\pi}{2}$

1

11.  $\cot \frac{7\pi}{4}$

-1

12.  $\csc \frac{2\pi}{3}$

$\frac{2\sqrt{3}}{3}$

13.  $\cos \frac{3\pi}{2}$

0

14.  $\tan \left(\frac{5}{6}\pi\right)$

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

15.  $\sec \left(\frac{7}{4}\pi\right)$

$\sqrt{2}$

16.  $\tan 180^\circ$

0

17.  $\cot(-135^\circ)$

1

18.  $\sin 420^\circ$

$\frac{\sqrt{3}}{2}$

19.  $\sin(-30^\circ)$

$-\frac{1}{2}$

20.  $\sin 240^\circ$

$-\frac{\sqrt{3}}{2}$

21.  $\cos \left(-\frac{2\pi}{3}\right)$

$-\frac{1}{2}$

22.  $\cos \frac{\pi}{2}$

0

23.  $\cos \frac{4\pi}{3}$

$-\frac{1}{2}$

24.  $\tan(-45^\circ)$

-1

If  $0 \leq \theta < 2\pi$ , determine the value(s) of  $\theta$  in radians that makes each statement true.

25.  $\tan \theta = 0$

$0, \pi$

26.  $\sin \theta = -\frac{\sqrt{2}}{2}$

$\frac{5\pi}{4}, \frac{7\pi}{4}$

27.  $\cot \theta$  is undefined

$0, \pi$

28.  $\sin \theta = -1$

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

29.  $\cot \theta = \sqrt{3}$

~~scribble~~  
 $\frac{\pi}{6}, \frac{7\pi}{6}$

30.  $\cos \theta = -\frac{\sqrt{3}}{2}$

$\frac{5\pi}{6}, \frac{7\pi}{6}$

Evaluate to four decimal places.

1.  $\arcsin(-0.1334)$

$-0.1337$

2.  $\arccos(-0.3987)$

$1.9809$

3.  $\operatorname{arccsc}(1.942)$

$0.5409$

4.  $\cot^{-1}(1.767)$

$0.5150$

5.  $\tan^{-1}(1.111)$

$0.8379$

6.  $\sec^{-1}(-1.287)$

$2.4607$

Evaluate to the nearest tenth of a degree.

7.  $\csc^{-1} 1.857$

$32.6^\circ$

8.  $\operatorname{arcsec} 1.222$

$35.1^\circ$

9.  $\cot^{-1} 2.453$

$22.2^\circ$

Determine the exact value of each of the following.

10.  $\arcsin\left(-\frac{\sqrt{3}}{2}\right)$

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

11.  $\arccos(-1)$

$\pi$

12.  $\operatorname{arccot}(-1)$

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

13.  $\operatorname{arccsc}(-2)$

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

14.  $\sec^{-1}(-\sqrt{2})$

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

15.  $\cot^{-1}(-\sqrt{3})$

$\frac{5\pi}{6}$

16.  $\sec\left(\operatorname{arccot}\frac{3}{5}\right)$

$\frac{\sqrt{34}}{3}$

17.  $\csc\left(\arcsin\frac{12}{13}\right)$

$\frac{13}{12}$

18.  $\sin\left(\cos^{-1}\frac{1}{4}\right)$

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

19.  $\tan\left(\operatorname{arccos}\frac{-5}{13}\right)$

$-\frac{12}{5}$

20.  $\arccos\left(\sin\frac{4\pi}{3}\right) = \cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$

$\frac{5\pi}{6}$

21.  $\arccos\left(\cos\frac{3\pi}{4}\right) = \cos^{-1}\left(\frac{\sqrt{2}}{2}\right)$

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

Use each equation to answer the following:

1.  $y = -\cos\frac{1}{3}(x + \pi) - 3$

Amplitude: 1

Period:  $6\pi$

Phase Shift: left  $\pi$

Vertical Shift: down 3

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

Amplitude: none

Period:  ~~$3\pi$~~

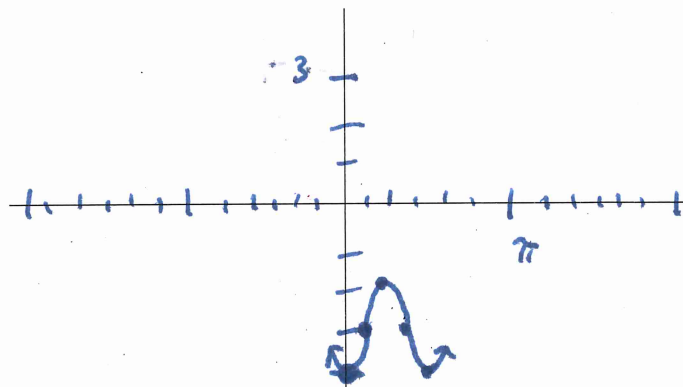
Phase Shift: right  $\frac{\pi}{4}$

Vertical Shift: up 4

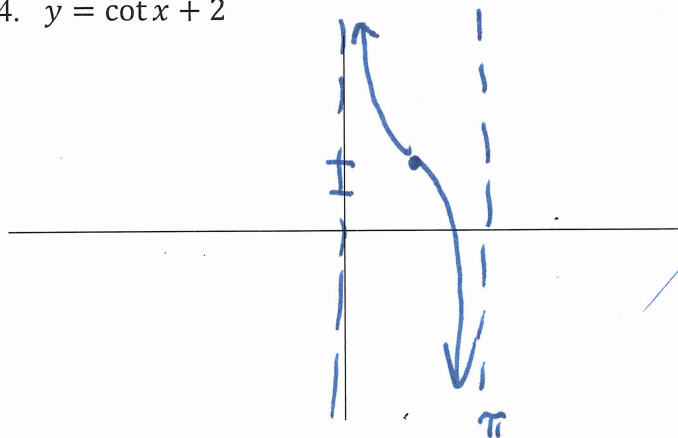
$-\frac{2}{3}\left(x - \frac{\pi}{4}\right)$

Graph one cycle for each of the following equations. Axes need to be clearly marked and in proportion.

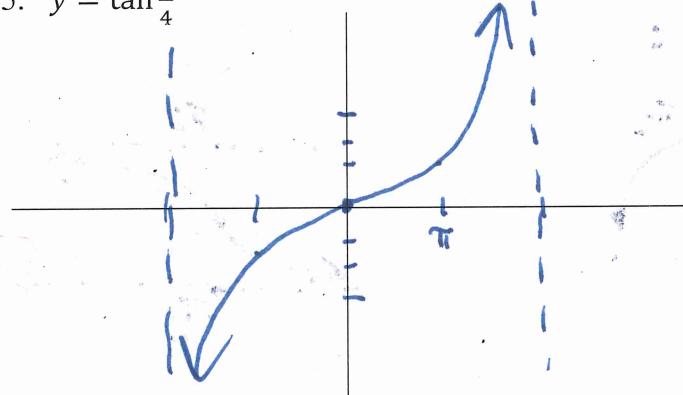
3.  $y = -\cos 3x - 3$



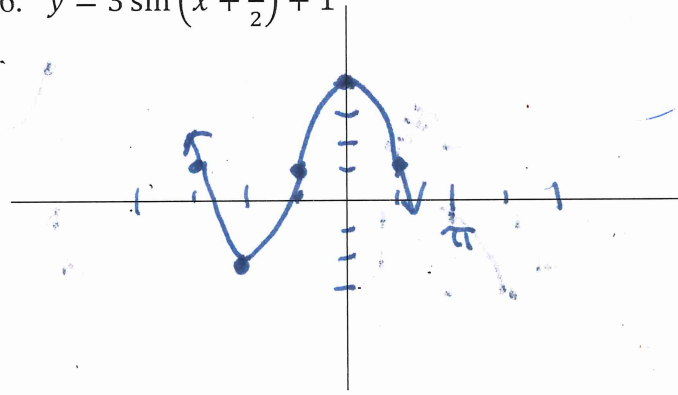
4.  $y = \cot x + 2$



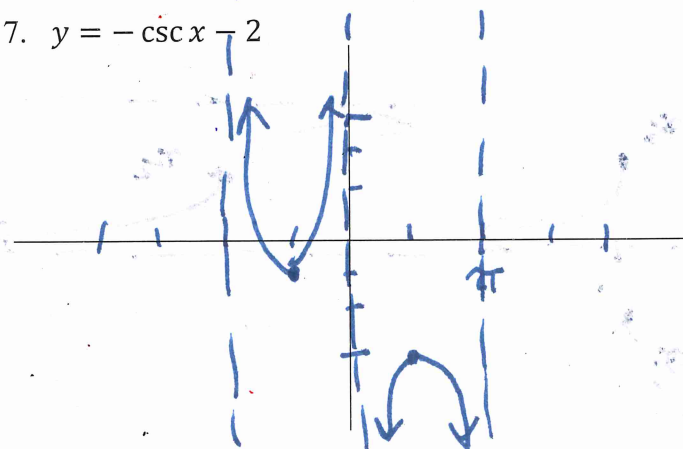
5.  $y = \tan\frac{x}{4}$



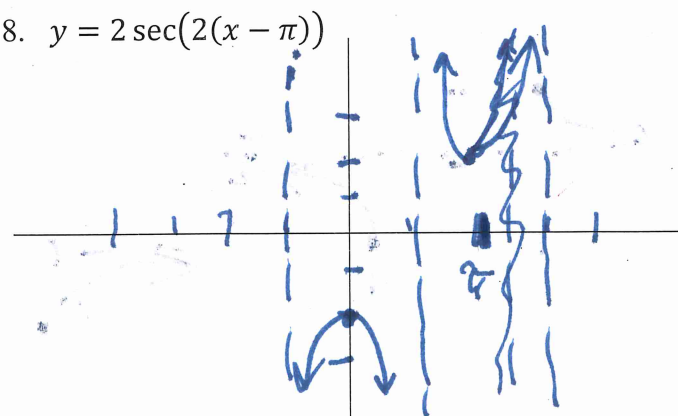
6.  $y = 3\sin\left(x + \frac{\pi}{2}\right) + 1$



7.  $y = -\csc x - 2$

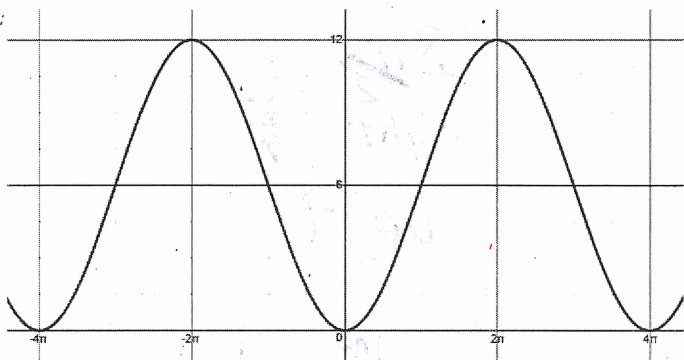


8.  $y = 2\sec(2(x - \pi))$

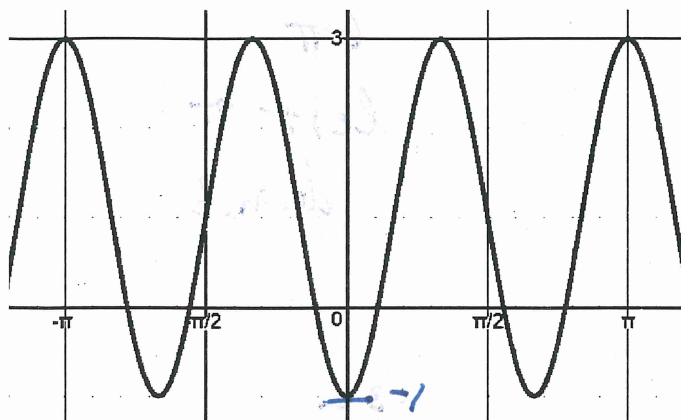


Write an equation for the following graphs (Many answers possible)

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

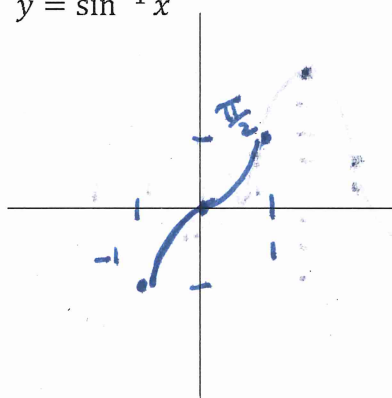


2.  $y = -2 \cos(3x) + 1$

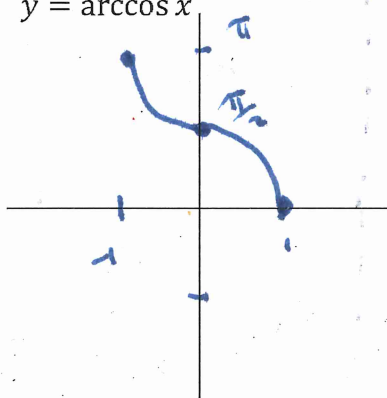


Graph the following equations.

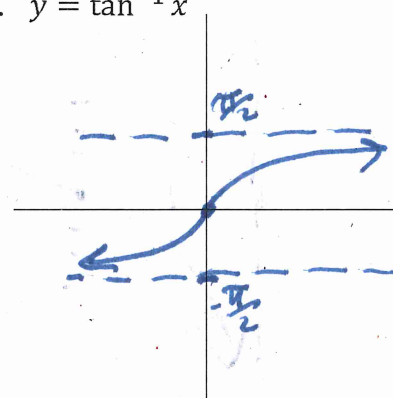
3.  $y = \sin^{-1} x$



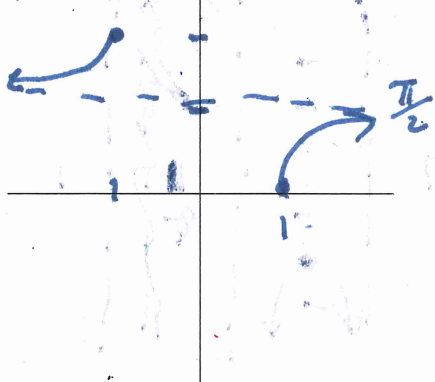
4.  $y = \arccos x$



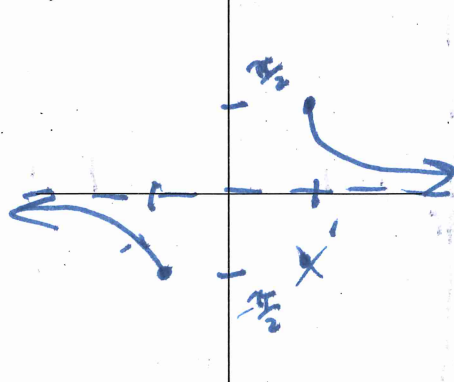
5.  $y = \tan^{-1} x$



6.  $y = \operatorname{arcsec} x$



7.  $y = \operatorname{csc}^{-1} x$



8.  $y = \operatorname{arccot} x$

