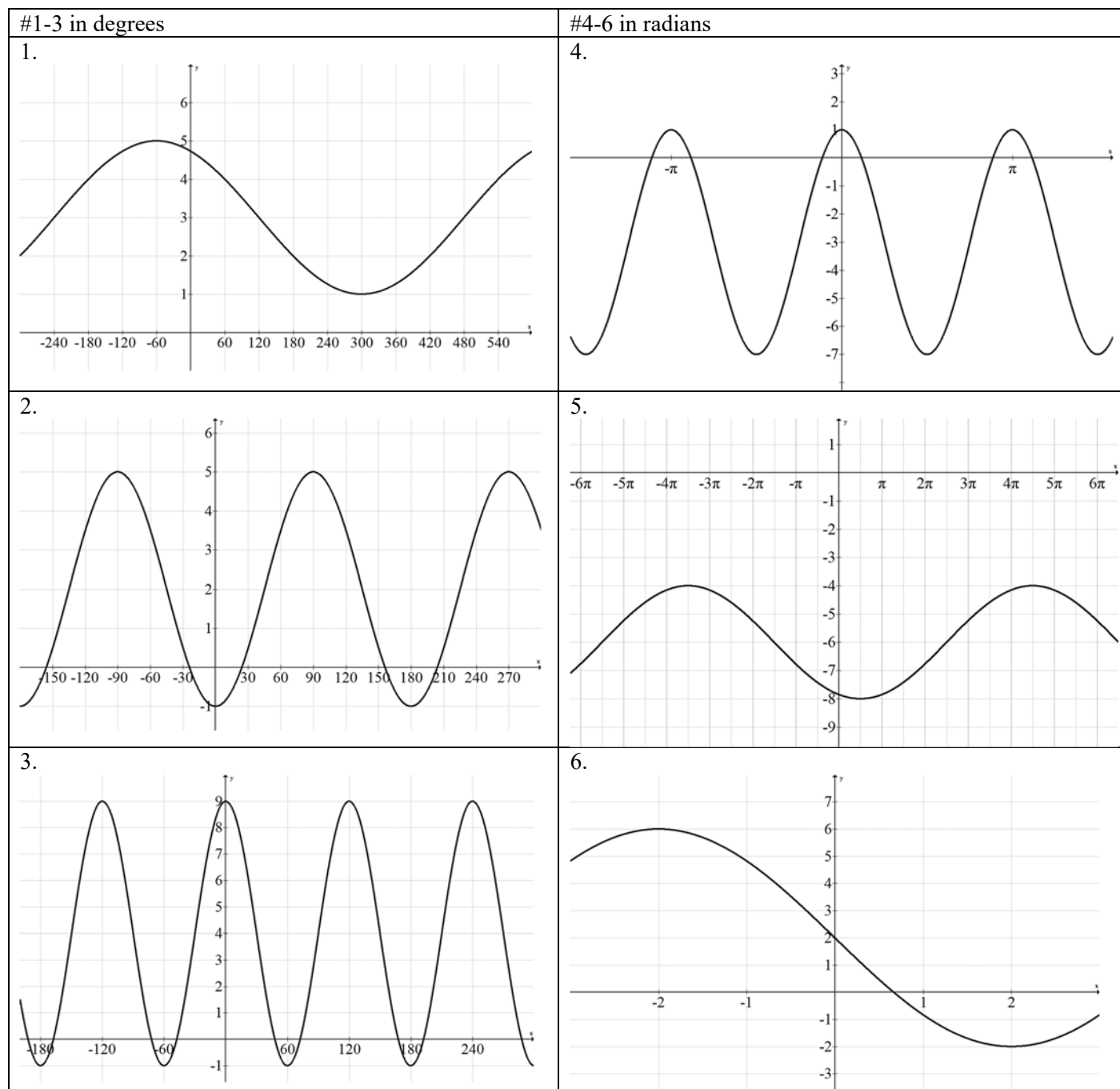


## Trig Graphs Review

Determine the equation for the following graphs.



Graph the following.

7.  $y = 3 + 5 \cos \frac{2}{3}(\theta - 150^\circ)$  in degrees

9.  $y = 3 + 7 \sin 2\left(x + \frac{\pi}{4}\right)$  in radians

11.  $y = -12 + 20 \cos 30(\theta + 4^\circ)$  in degrees

8.  $y = -5 + 6 \cos \frac{\pi}{5}(x - 2)$  in radians

10.  $y = 5 - 2 \cos \frac{1}{4}(\theta - \pi)$  in radians

12.  $y = 5 + 2 \tan 2\left(x - \frac{\pi}{3}\right)$  in radians

13.  $y = -4 + 8 \csc 3(\theta + 50)$  in degrees
14.  $y = -3 + 2 \cos 2\left(x + \frac{\pi}{4}\right)$  in radians
15.  $y = 3 - 2 \sec 2\left(x - \frac{\pi}{2}\right)$  in radians
16.  $y = -1 + 4 \tan\left(x - \frac{\pi}{3}\right)$  in radians
17.  $y = 4 - 2 \csc 2\left(x - \frac{\pi}{6}\right)$  in radians
18.  $y = 3 - \frac{1}{2} \cot(2\pi x)$  in radians
19. A company that produces snowboards, which are seasonal products, forecasts that monthly sales (in thousands) for one year with a peak in December of 118.25 units and minimum of 30.75 units in June. Determine the equation of the sinusoidal function with  $t = 1$  representing January.
20. The daily consumption of diesel fuel on a farm has an average of 30.3 gallons, which occurs on January 11, with a peak of 51.9 gallons on April 12. Determine the equation of the periodic function with  $t = 11$  representing January 11.
21. A buoy oscillates in harmonic motion as waves go past. At a given time it is noted that buoy moves a total of 6 feet from its lowest point to its highest point, returning to its highest point every 15 seconds. Write an equation that describes the motion of the buoy if it is at its highest point at  $t = 0$ .
22. If you were to continue graphing numerous cycles for #8, how many times would  $y = 0$  on the interval  $(0, 50)$ ?
23. If you were to continue graphing numerous cycles for #11, how many times would  $y = -28$  on the interval  $(0, 32)$ ?

Answers:

Possible solutions

1.  $y = 3 + 2 \cos \frac{1}{2}(x + 60^\circ)$

$y = 3 + 2 \sin \frac{1}{2}(x + 240^\circ)$

2.  $y = 2 + 3 \cos 2(x - 90^\circ)$

$y = 2 + 3 \sin 2(x - 45^\circ)$

3.  $y = 4 + 5 \cos 3x$

$y = 4 + 5 \sin 3(x + 30^\circ)$

4.  $y = -3 + 4 \cos 2(x)$

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

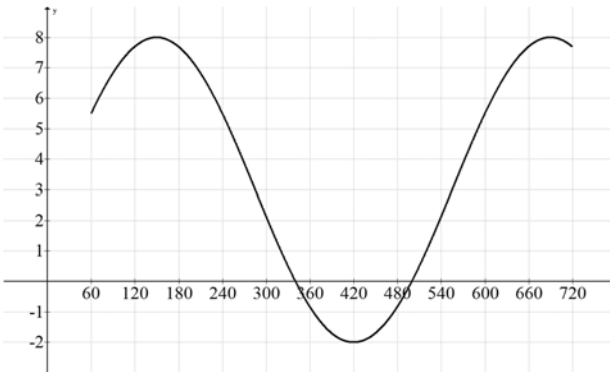
5.  $y = -6 - 2 \cos \frac{1}{4}\left(x - \frac{\pi}{2}\right)$

$y = -6 + 2 \sin \frac{1}{4}\left(x - \frac{5\pi}{2}\right)$

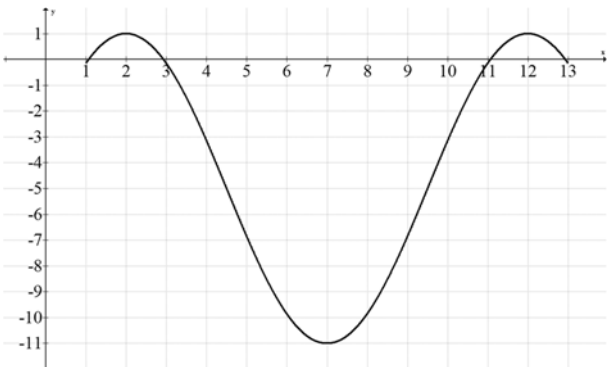
6.  $y = 2 + 4 \cos \frac{\pi}{4}(x + 2)$

$y = 2 - 4 \sin \frac{\pi}{4}(x)$

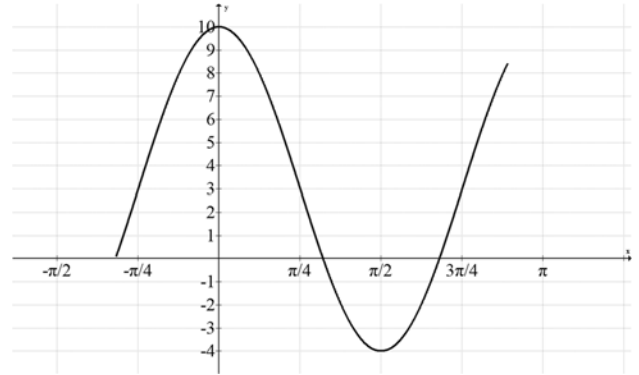
7.



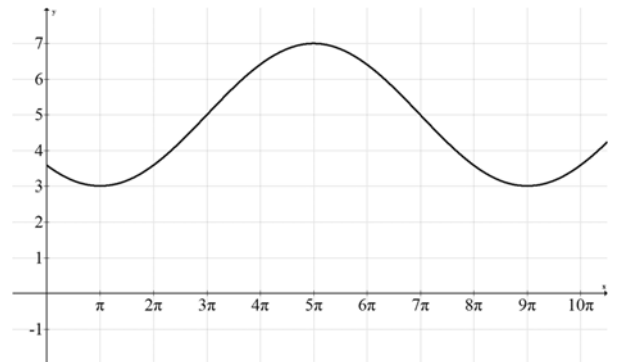
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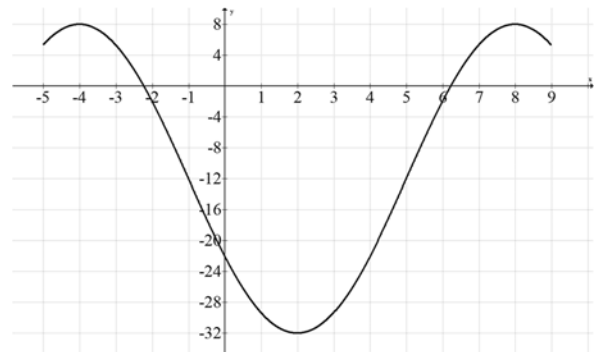
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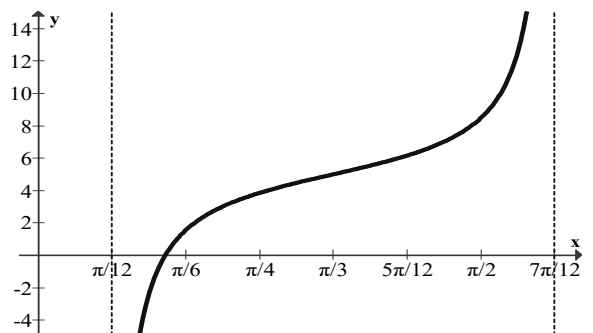
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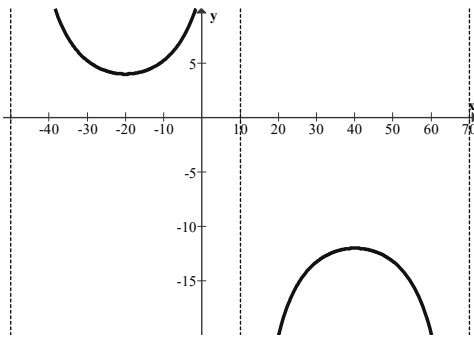
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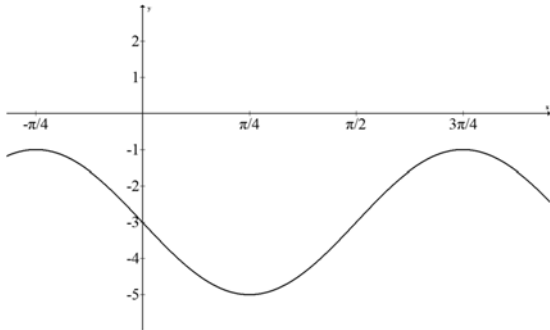
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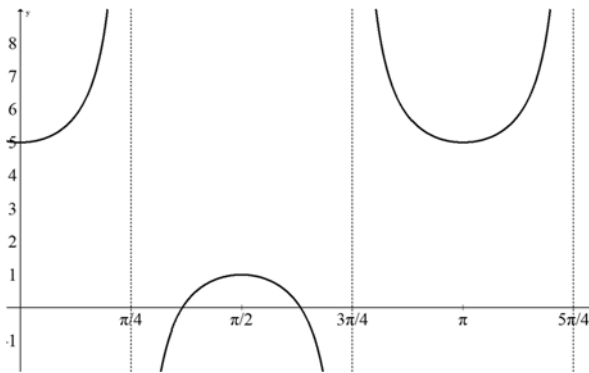
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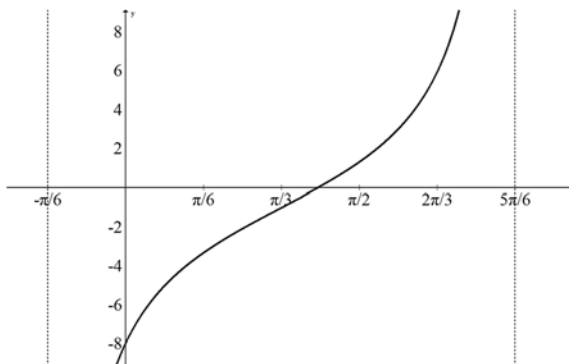
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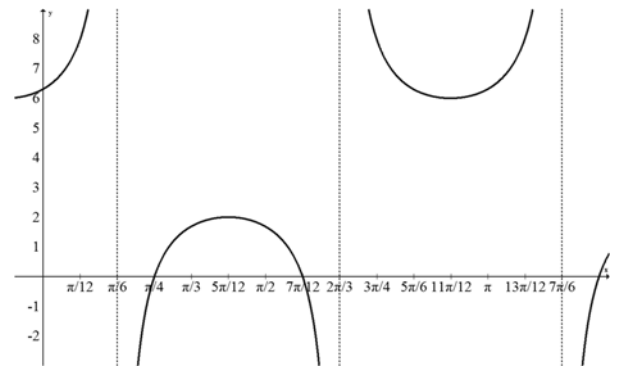
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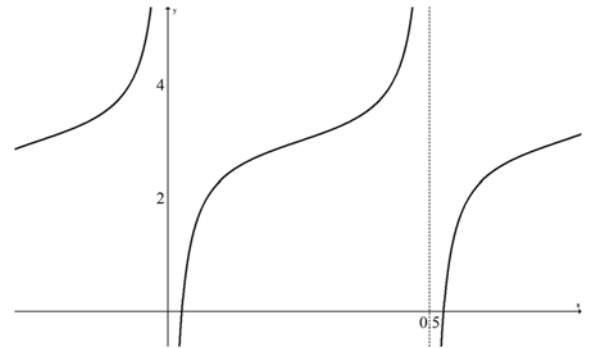
16.



17.



18.



19.  $y = 74.5 + 43.75 \cos \frac{\pi}{6}(t)$

20.  $y = 30.3 + 21.6 \cos \frac{2\pi}{365}(t - 102)$

21.  $y = 3 \cos \frac{2\pi}{15}(t)$

22. 10 times

23. 6 times