

Graphing Sine and Cosine Trig Functions WS #3

Find the amplitude, the period in radians, the phase shift in radians, the vertical shift, and the minimum and maximum values.

1) $y = 3\cos\left(6\theta - \frac{\pi}{6}\right) + 3$

2) $y = 2\sin\left(\frac{\theta}{7} + \frac{3\pi}{4}\right) - 3$

3) $y = 3 + \frac{1}{3} \cdot \cos\left(3\theta + \frac{2\pi}{3}\right)$

4) $y = \frac{1}{10} \cdot \sin\left(\frac{\theta}{7} - \frac{\pi}{4}\right) + 3$

5) $y = 7\cos\left(\frac{\theta}{2} - \frac{2\pi}{3}\right) + 4$

6) $y = \frac{1}{9} \cdot \cos\left(7\theta - \frac{5\pi}{4}\right) - 3$

7) $y = 2 + 5\sin\left(\frac{\theta}{2} - \frac{\pi}{4}\right)$

8) $y = \frac{1}{4} \cdot \sin 5\theta + 4$

9) $y = \frac{1}{7} \cdot \sin\left(\frac{\theta}{7} - \frac{5\pi}{6}\right) - 3$

10) $y = 8\cos\left(5\theta + \frac{5\pi}{6}\right) - 2$

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

11) $y = 2\sin\left(3\theta - \frac{3\pi}{2}\right)$

12) $y = \frac{1}{2} \cdot \cos\left(2\theta - \frac{\pi}{6}\right)$

13) $y = 3\cos\left(2\theta - \frac{\pi}{6}\right)$

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

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

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

17) $y = \frac{1}{2} \cdot \sin\left(4\theta + \frac{2\pi}{3}\right)$

18) $y = \frac{1}{2} \cdot \sin\left(2\theta + \frac{\pi}{3}\right)$

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

19) $y = 3\cos\frac{\theta}{3} - 1$

20) $y = 2 + \frac{1}{2} \cdot \sin 3\theta$

21) $y = 2\cos 2\theta + 2$

22) $y = 2\sin 4\theta - 1$

23) $y = 1 + 4\cos 2\theta$

24) $y = 2\sin 3\theta + 2$

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

25) $y = 2\cos\left(4\theta + \frac{3\pi}{4}\right) - 1$

26) $y = 4\sin\left(3\theta + \frac{2\pi}{3}\right) + 1$

27) $y = 3\sin\left(2\theta + \frac{5\pi}{6}\right) - 2$

28) $y = 2\sin\left(3\theta - \frac{\pi}{2}\right) - 1$

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

30) $y = \sin\left(3\theta + \frac{5\pi}{6}\right) - 1$

Answers to Graphing Sine and Cosine Trig Functions WS #3

1) Amplitude: 3

Period: $\frac{\pi}{3}$

Phase shift: Right $\frac{\pi}{36}$

Vert. shift: Up 3

Min: 0

Max: 6

2) Amplitude: 2

Period: 14π

Phase shift: Left $\frac{21\pi}{4}$

Vert. shift: Down 3

Min: -5

Max: -1

3) Amplitude: $\frac{1}{3}$

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

Phase shift: Left $\frac{2\pi}{9}$

Vert. shift: Up 3

Min: $\frac{8}{3}$

Max: $\frac{10}{3}$

4) Amplitude: $\frac{1}{10}$

Period: 14π

Phase shift: Right $\frac{7\pi}{4}$

Vert. shift: Up 3

Min: $\frac{29}{10}$

Max: $\frac{31}{10}$

5) Amplitude: 7

Period: 4π

Phase shift: Right $\frac{4\pi}{3}$

Vert. shift: Up 4

Min: -3

Max: 11

6) Amplitude: $\frac{1}{9}$

Period: $\frac{2\pi}{7}$

Phase shift: Right $\frac{5\pi}{28}$

Vert. shift: Down 3

Min: $-\frac{28}{9}$

Max: $-\frac{26}{9}$

7) Amplitude: 5

Period: 4π

Phase shift: Right $\frac{\pi}{2}$

Vert. shift: Up 2

Min: -3

Max: 7

8) Amplitude: $\frac{1}{4}$

Period: $\frac{2\pi}{5}$

Phase shift: None

Vert. shift: Up 4

Min: $\frac{15}{4}$

Max: $\frac{17}{4}$

9) Amplitude: $\frac{1}{7}$

Period: 14π

Phase shift: Right $\frac{35\pi}{6}$

Vert. shift: Down 3

Min: $-\frac{22}{7}$

Max: $-\frac{20}{7}$

10) Amplitude: 8

Period: $\frac{2\pi}{5}$

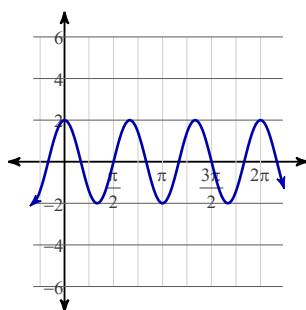
Phase shift: Left $\frac{\pi}{6}$

Vert. shift: Down 2

Min: -10

Max: 6

11)

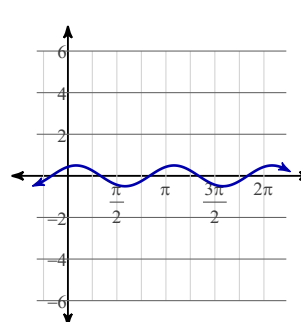


Amplitude: 2

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

Phase shift: Right $\frac{\pi}{2}$

12)

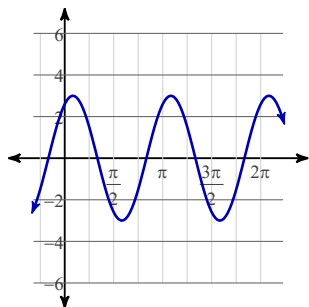


Amplitude: $\frac{1}{2}$

Period: π

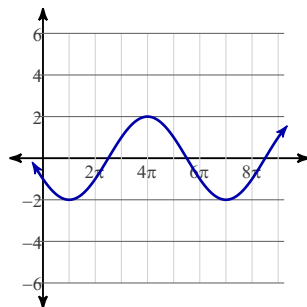
Phase shift: Right $\frac{\pi}{12}$

13)



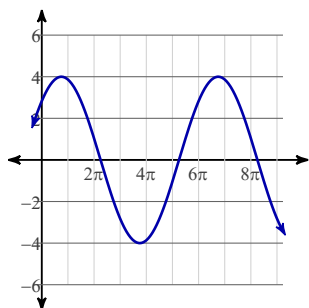
Amplitude: 3
 Period: π
 Phase shift: Right $\frac{\pi}{12}$

14)



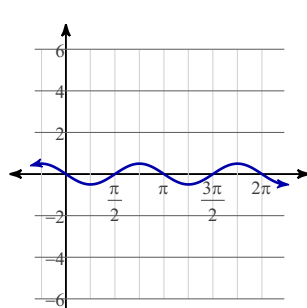
Amplitude: 2
 Period: 6π
 Phase shift: Left 2π

15)



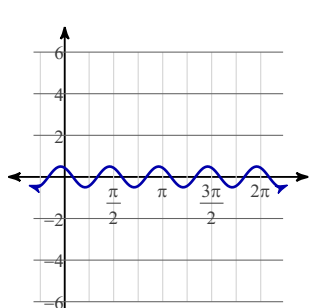
Amplitude: 4
 Period: 6π
 Phase shift: Right $\frac{3\pi}{4}$

16)



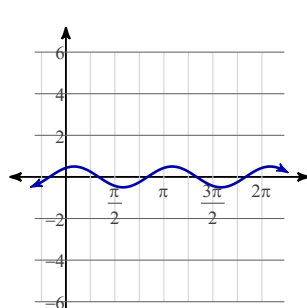
Amplitude: $\frac{1}{2}$
 Period: π
 Phase shift: Left $\frac{\pi}{4}$

17)



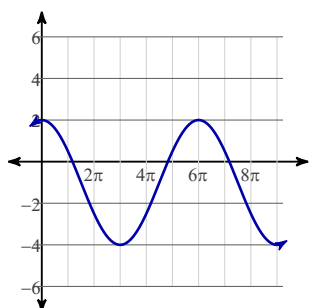
Amplitude: $\frac{1}{2}$
 Period: $\frac{\pi}{2}$
 Phase shift: Left $\frac{\pi}{6}$

18)



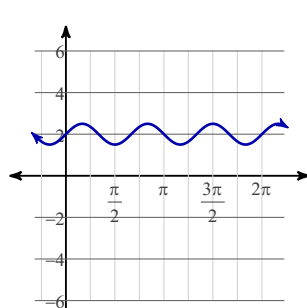
Amplitude: $\frac{1}{2}$
 Period: π
 Phase shift: Left $\frac{\pi}{6}$

19)



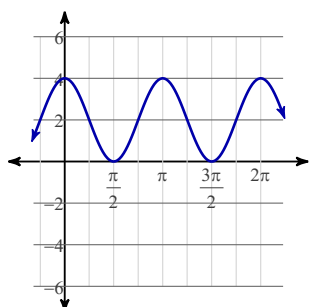
Amplitude: 3
 Period: 6π
 Vert. shift: Down 1

20)



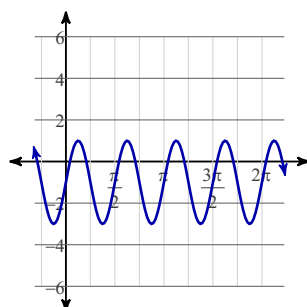
Amplitude: $\frac{1}{2}$
 Period: $\frac{2\pi}{3}$
 Vert. shift: Up 2

21)



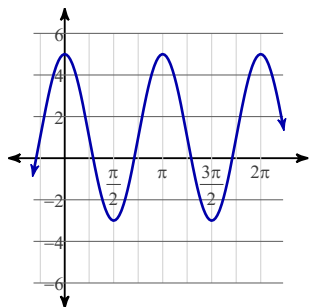
Amplitude: 2
 Period: π
 Vert. shift: Up 2

22)



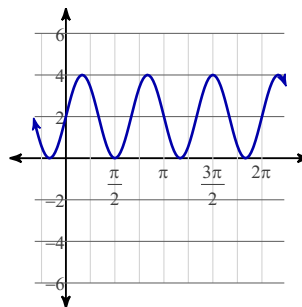
Amplitude: 2
 Period: $\frac{\pi}{2}$
 Vert. shift: Down 1

23)



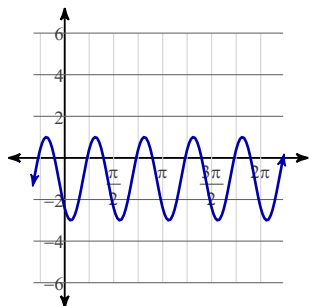
Amplitude: 4
 Period: π
 Vert. shift: Up 1

24)



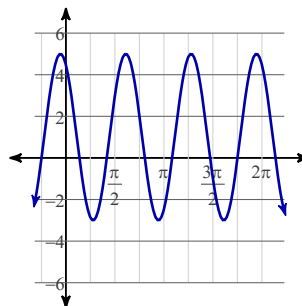
Amplitude: 2
 Period: $\frac{2\pi}{3}$
 Vert. shift: Up 2

25)



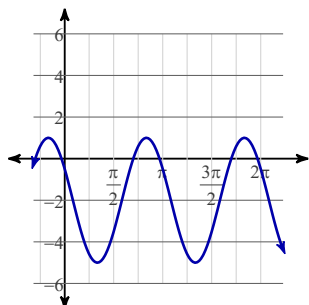
Amplitude: 2
 Period: $\frac{\pi}{2}$
 Phase shift: Left $\frac{3\pi}{16}$
 Vert. shift: Down 1

26)



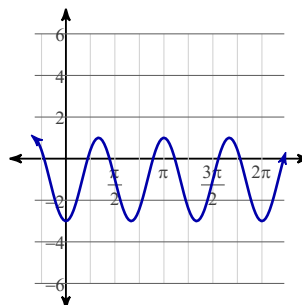
Amplitude: 4
 Period: $\frac{2\pi}{3}$
 Phase shift: Left $\frac{2\pi}{9}$
 Vert. shift: Up 1

27)



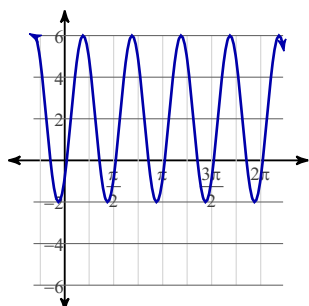
Amplitude: 3
 Period: π
 Phase shift: Left $\frac{5\pi}{12}$
 Vert. shift: Down 2

28)



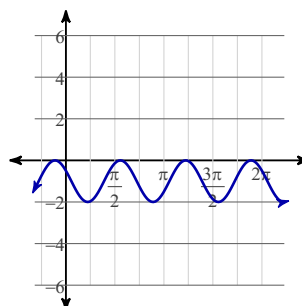
Amplitude: 2
 Period: $\frac{2\pi}{3}$
 Phase shift: Right $\frac{\pi}{6}$
 Vert. shift: Down 1

29)



Amplitude: 4
 Period: $\frac{\pi}{2}$
 Phase shift: Right $\frac{\pi}{16}$
 Vert. shift: Up 2

30)



Amplitude: 1
 Period: $\frac{2\pi}{3}$
 Phase shift: Left $\frac{5\pi}{18}$
 Vert. shift: Down 1