

Answers to Study Guide for Unit 4 TEST

1. $\frac{\pi}{6}$ or 30°

2. $\frac{\pi}{6}$ or 30°

3. $\frac{3\pi}{4}$ or 135°

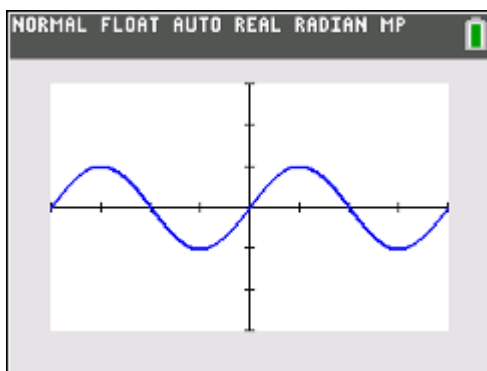
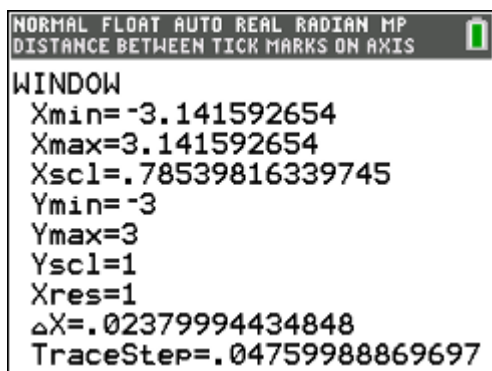
4. amp: 1, per: 2π , midline: $y = 0$, p.s: π

5. amp: 5, per: 8π , midline: $y = 4$, p.s: 4π

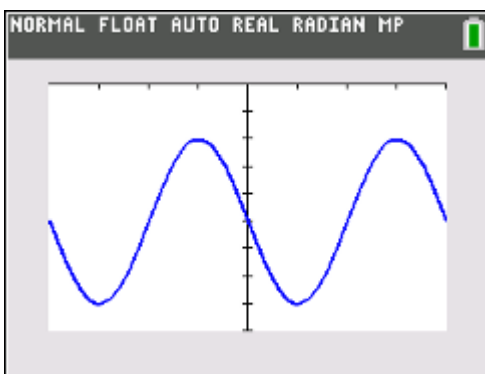
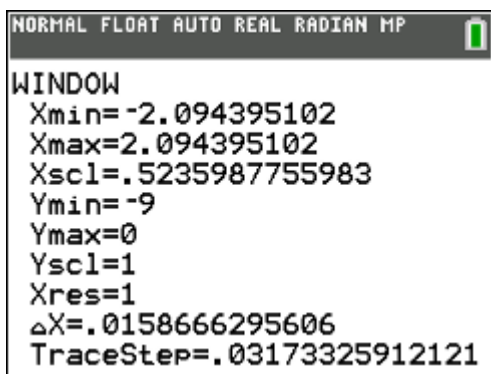
6. amp: $\frac{1}{2}$, per: π , midline: $y = 0$, p.s: $\frac{\pi}{6}$

7. amp: 1, per: $\frac{2\pi}{3}$, midline: $y = -3$, p.s: $-\frac{\pi}{6}$

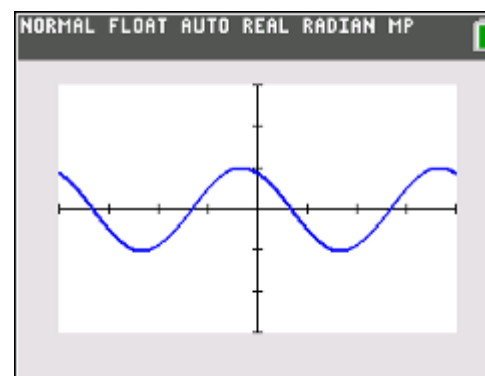
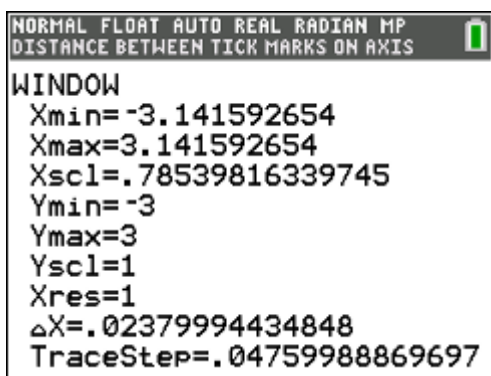
8. horizontal shrink by 2 and phase shift to the right $\frac{\pi}{4}$



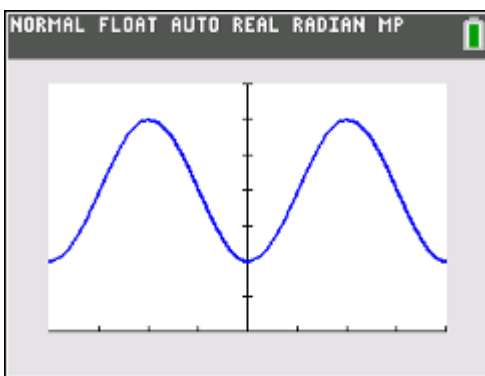
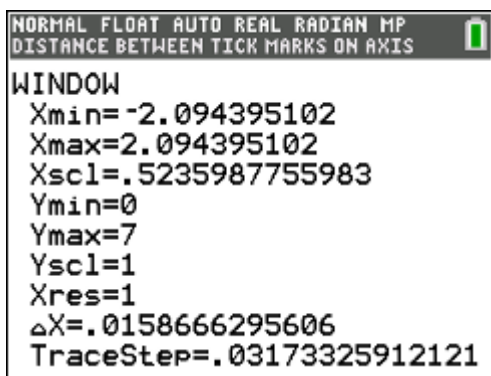
9. vertical stretch by 3, horizontal shrink by 3, phase shift to the left $\frac{\pi}{3}$ and vertical shift down 5



10. reflects over the x-axis, horizontal shrink by 2 and phase shift to the right $\frac{\pi}{6}$



11. reflects over the x-axis, vertical stretch by 2, horizontal shrink by 3 and vertical shift up 4



12. D: $x \neq \frac{\pi}{2} + \pi n$

R: $(-\infty, \infty)$

Per: π

Asymptotes: $x = \frac{\pi}{2} + \pi n$

13. D: $x \neq \frac{\pi}{4}n$

R: $(-\infty, -2] [2, \infty)$

Per: $\frac{\pi}{2}$

Asymptotes: $x = \frac{\pi}{4}n$

14. D: $x \neq \frac{\pi}{8} + \frac{\pi}{4}n$

R: $(-\infty, -1] [1, \infty)$

Per: $\frac{\pi}{2}$

Asymptotes: $x = \frac{\pi}{8} + \frac{\pi}{4}n$

15. D: $x \neq \frac{\pi}{3}n$

R: $(-\infty, \infty)$

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

Asymptotes: $x = \frac{\pi}{3}n$

16. D: $x \neq 4\pi n$

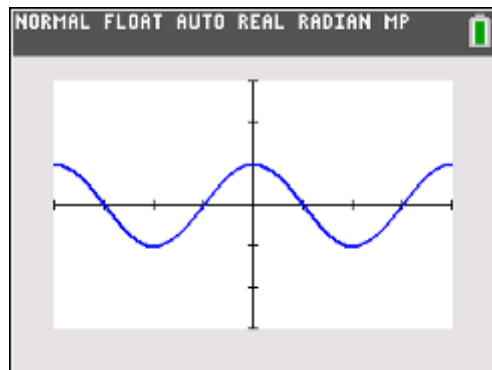
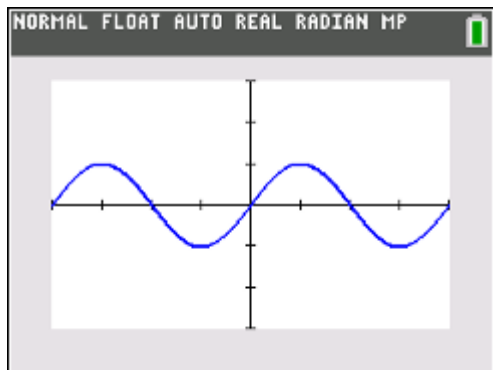
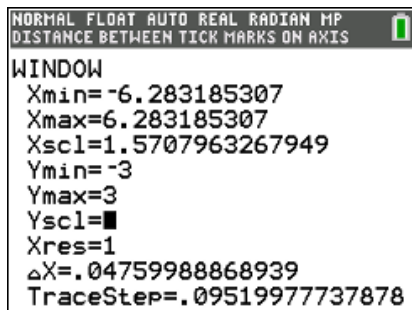
R: $(-\infty, \infty)$

Per: 4π

Asymptotes: $x = 4\pi n$

17.

18.



19.

$$y = 2\cos(4x + \pi)$$

20.

$$y = \cos(x + 1) - 4$$

21.

$$\theta = 145.52^\circ, 325.52^\circ$$

22.

$$\theta = 73.02^\circ, 106.98^\circ$$

23.

$$\theta = 19.39^\circ, 199.39^\circ$$

24.

$$\theta = 112.11^\circ, 247.89^\circ$$

25. $\theta = 23.20^\circ$

26. $\theta = 10.62^\circ$

27. 6.43 feet

28. 8.46 cm

29. 19.85 miles

30. First sighting 22.24 km

Second sighting 26.82 km

31.

0 or 0°

32.

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

33.

$$-\frac{\pi}{6} \text{ or } -30^\circ$$