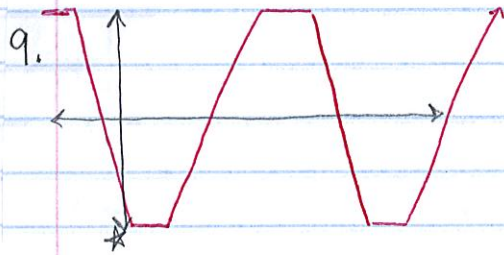


pg. 747 #3-63 x3, 19, 35

3. $h(z) = g(z - 1.6)$
1.6 units to the right



* $(2, -2)$ moved to $(0, -2)$

12. graph paper

18. $y = -4 \cos 2(x+1) - 2$
amp = 4
period = $\frac{2\pi}{2} = \pi$

phase shift = left 1
vertical shift = down 2

21. amp = 2
period = $\frac{2\pi}{1} = 2\pi$
each = $\frac{2\pi}{4} = \frac{\pi}{2}$

flip = yes
phase = left $\pi/4$
vertical = down 1 } graph paper

33. $y = \sin x + 3$

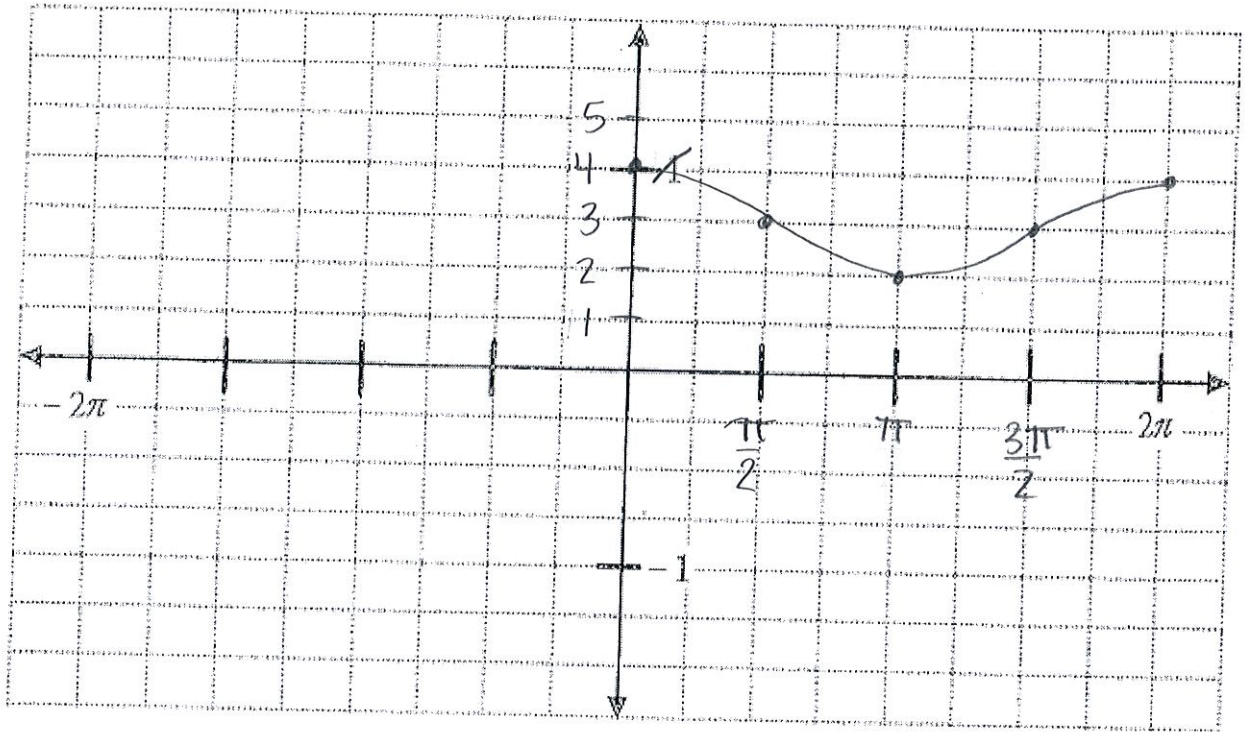
42. $\sin 0 = 0$. The x-intercept was shifted right 5.
The amplitude is 10

The period is 20. $20 = \frac{2\pi}{b}$ $20b = 2\pi$
 $y = 10 \sin \frac{\pi}{10}(x-5)$ $b = \frac{2\pi}{20} = \frac{\pi}{10}$

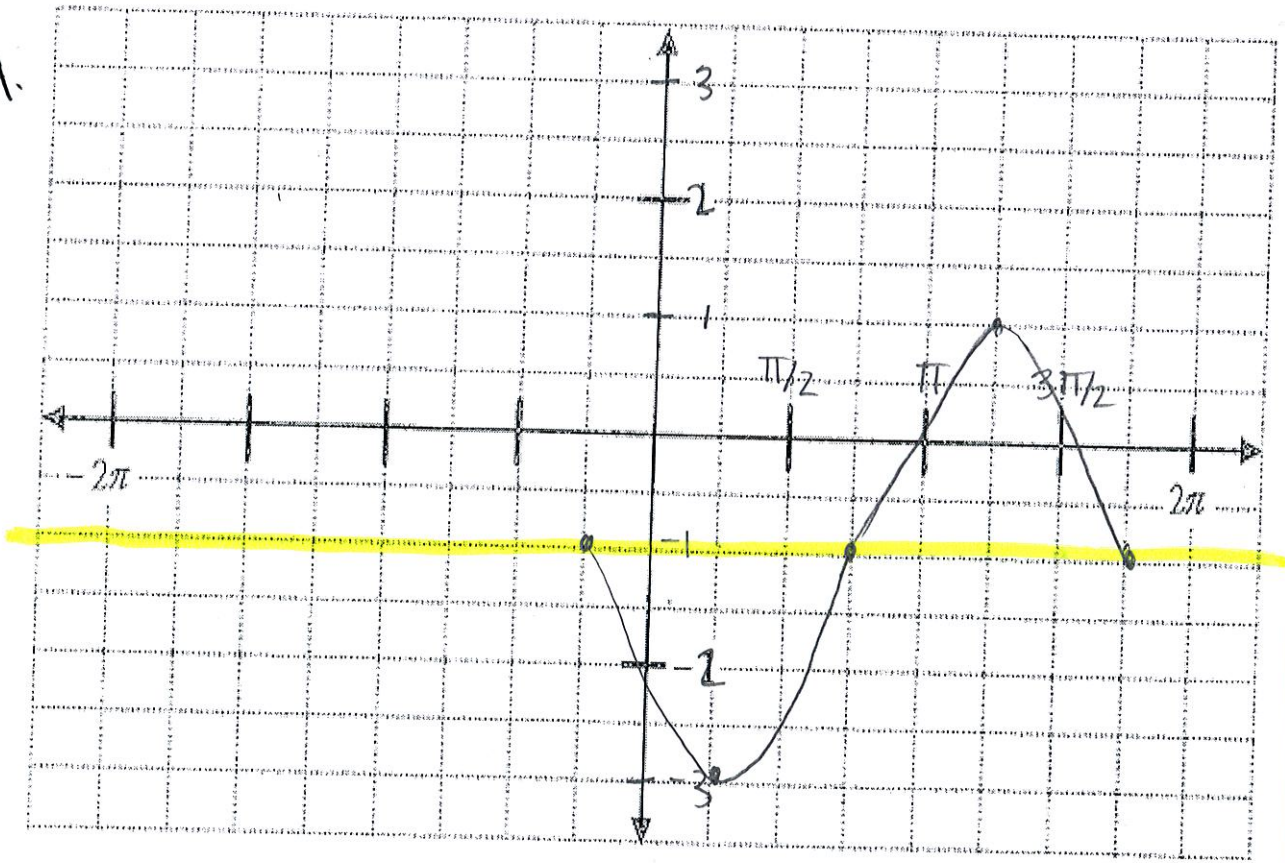
$\cos 0 = 1$ The amplitude is 10

The y-intercept is -10, so it's flipped
 $y = -10 \cos \frac{\pi}{10}x$

12.



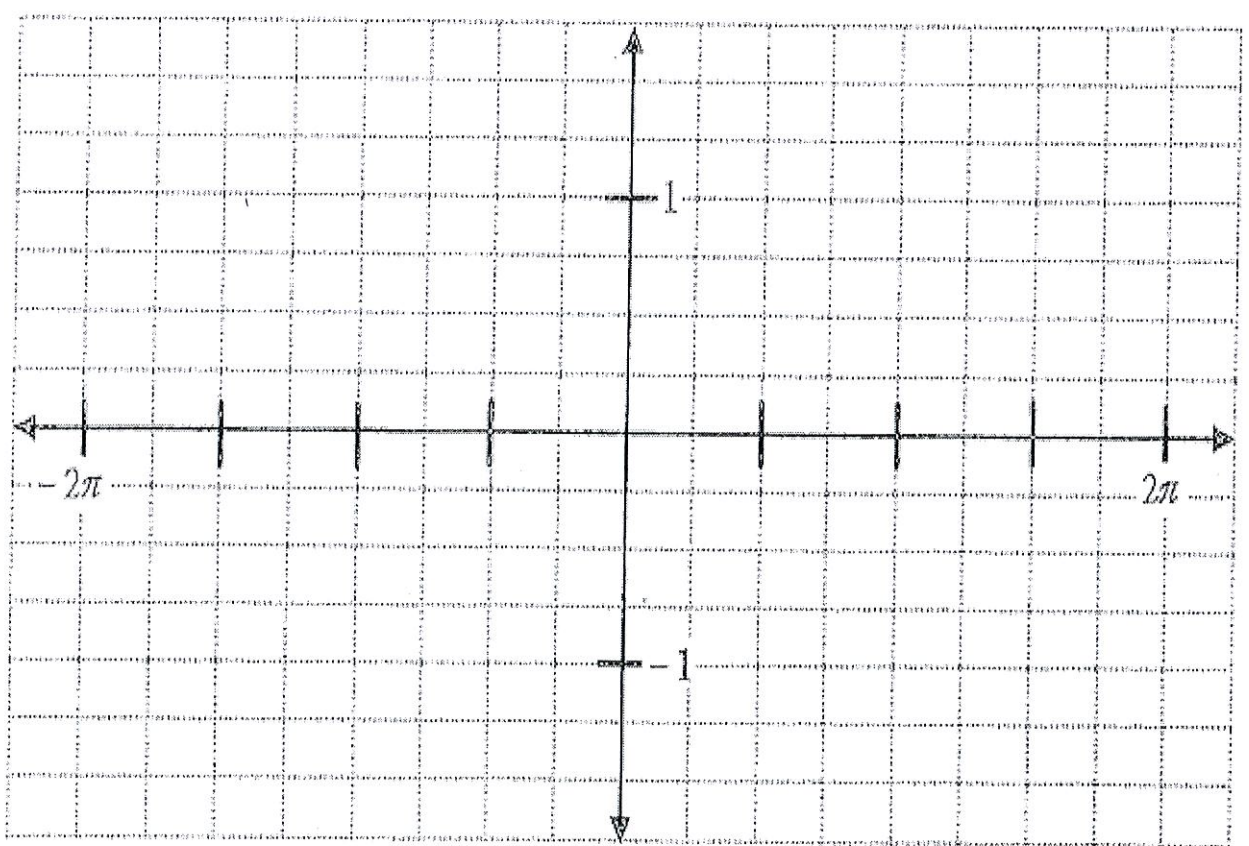
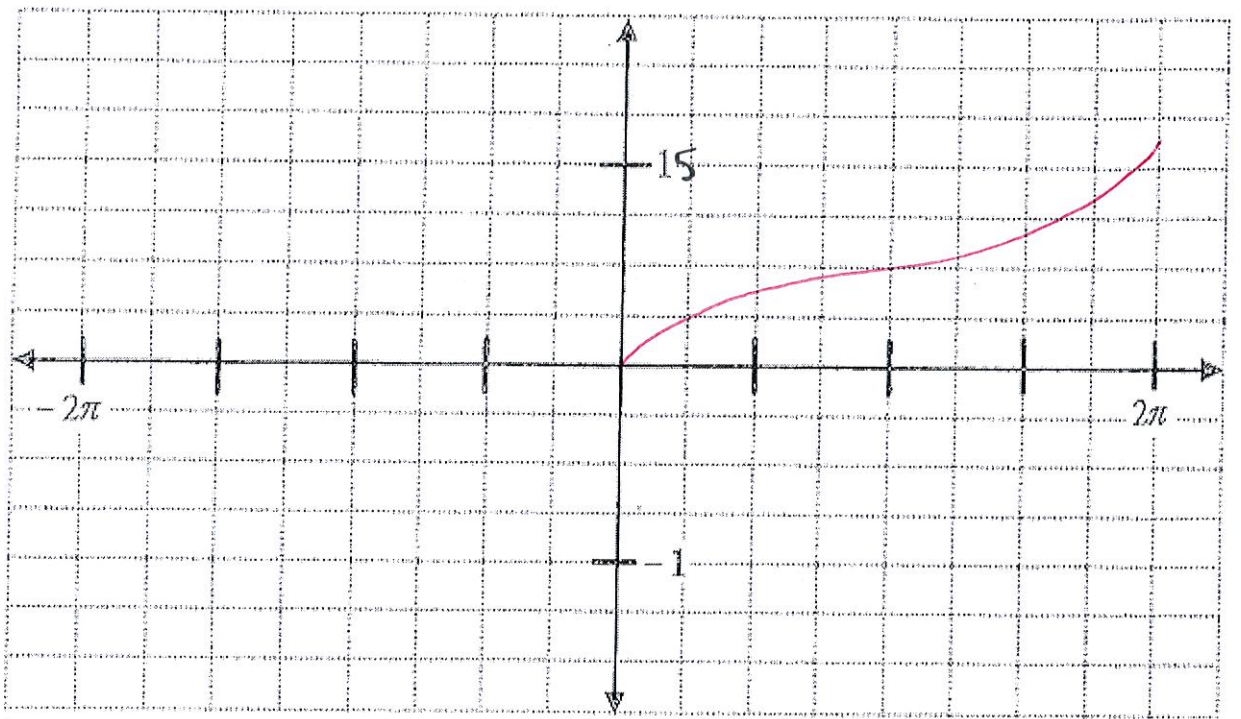
21.



48 GC & graph paper

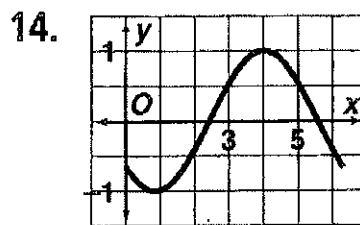
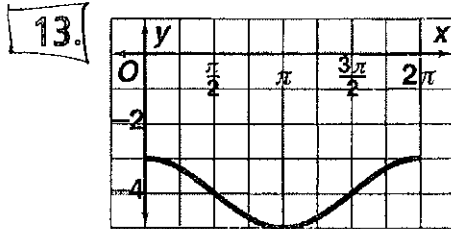
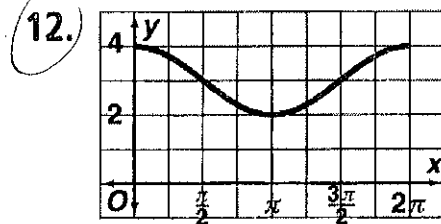
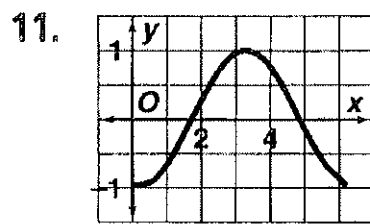
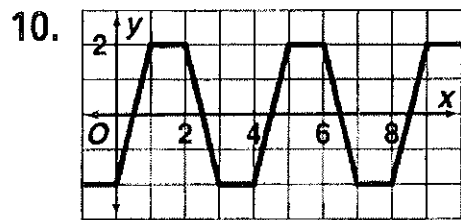
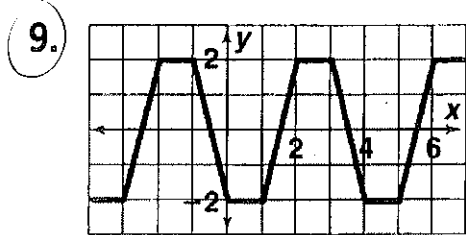
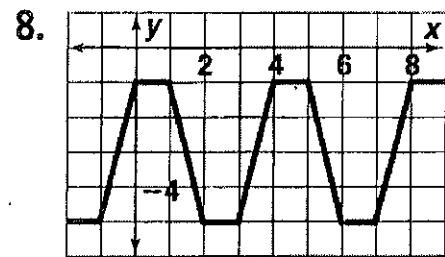
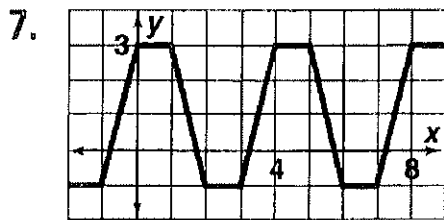
63. (we didn't do this yet!)

48.



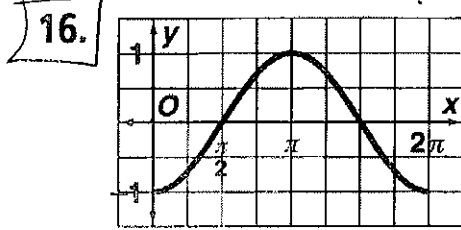
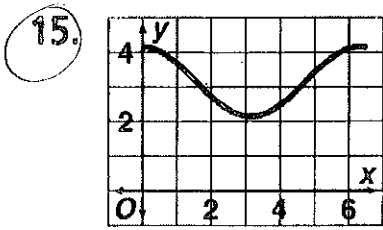
Answers for Lesson 13-7, pp. 746–748 Exercises

1. -1 ; 1 unit to the left
2. -2 ; 2 units to the left
3. 1.6 ; 1.6 units to the right
4. 3 ; 3 units to the right
5. $-\pi$; π units to the left
6. $\frac{5\pi}{7}$; $\frac{5\pi}{7}$ units to the right



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Answers for Lesson 13-7, pp. 746-748 Exercises (cont.)

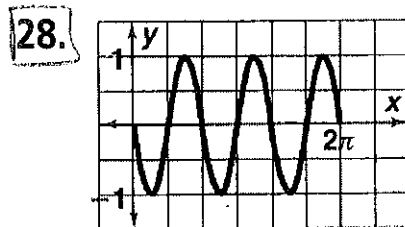
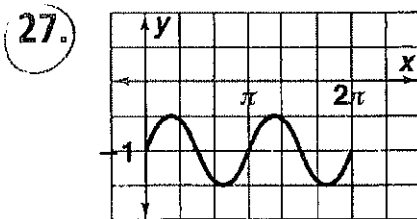
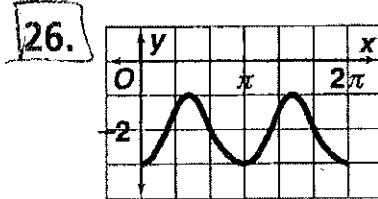
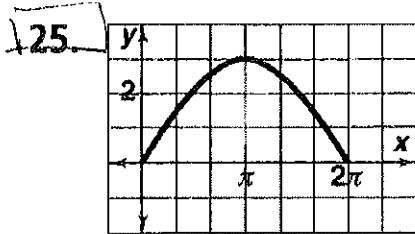
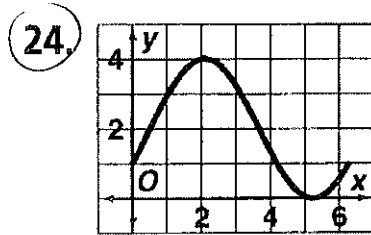
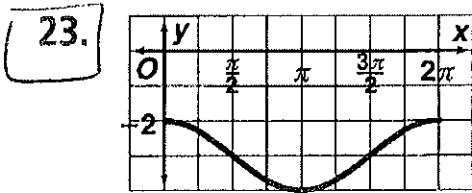
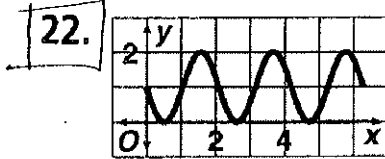
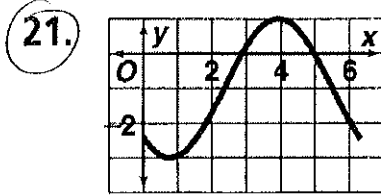


17. $3, 2\pi$; 1 unit up

18. $4, \pi$; 1 unit left and 2 units down

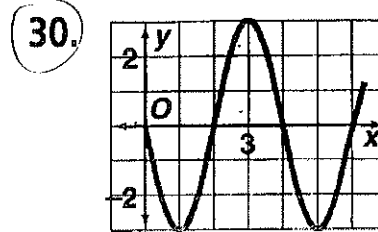
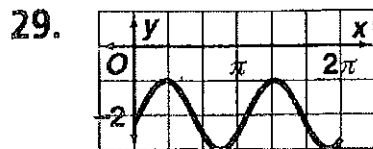
19. $1, 2\pi; \frac{\pi}{2}$ units left and 2 units up

20. 1, 2; 3 units right and 2 units up



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31. $y = \sin(x + \pi)$

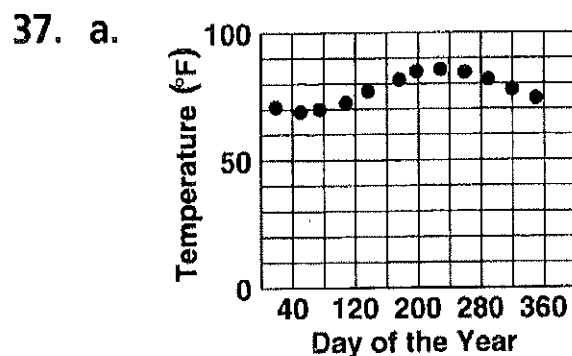
32. $y = \cos x - \frac{\pi}{2}$

33. $y = \sin x + 3$

34. $y = \cos(x - 1.5)$

35. $y = \cos\left(x + \frac{3}{2\pi}\right)$

36. $y = \sin x - 3\pi$



b. $y = 8.5 \cos\left(\frac{2\pi}{365}(x - 228)\right) + 77.5$

38. $y = \sin(x - 2) - 4$

39. $y = \cos(x + 3) + \pi$

40. $y = \sin\left(x - \frac{\pi}{2}\right) + 3.5$

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

42. $y = -10 \cos\left(\frac{\pi}{10}x\right); y = 10 \sin\left(\frac{\pi}{10}x - \frac{\pi}{2}\right)$

43. a. $\frac{\pi}{2}; \sin x = \cos\left(x - \frac{\pi}{2}\right)$

b. $-\frac{\pi}{2}; \cos x = \sin\left(x + \frac{\pi}{2}\right)$

44. a. $14.5 \sin\left(\frac{2\pi}{365}(x - 105.75)\right) + 76.5$

b. The difference between the two models is the horizontal shift.

c. about 66°F

d. March 20 (day 79)

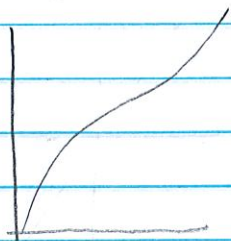
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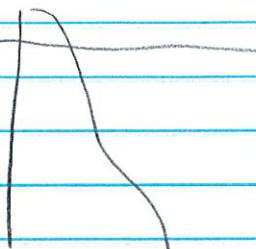
45 a. Check students' work

b. $g(x) = f(x+4) - 3$

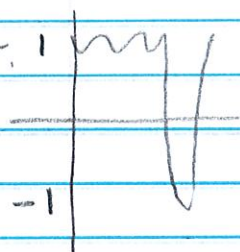
48.



51.



54.



57 B

$$60. \sin \theta = 3 \sin \theta$$

$$-\sin \theta - \sin \theta$$

$$\frac{0}{2} = \frac{2 \sin \theta}{2}$$

$$0 = \sin \theta$$

$$\theta = -\pi, 0, \pi, 2\pi$$

63. we didnt do 13.6 yet.