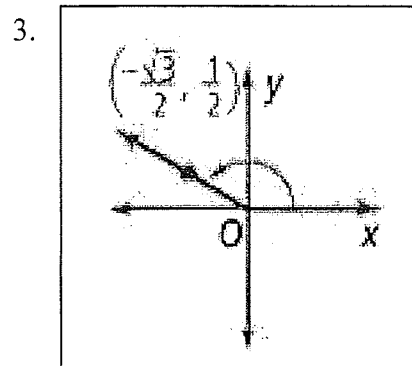
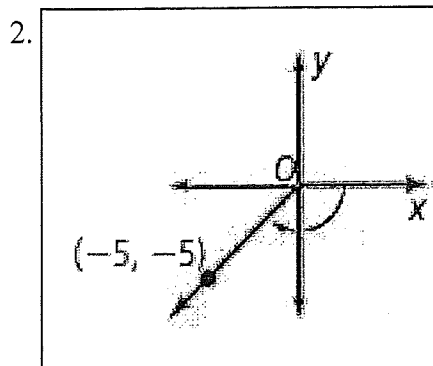
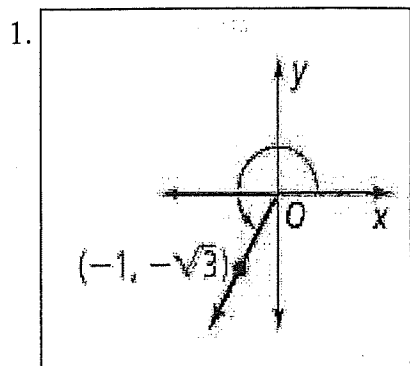


Find the angle measure of

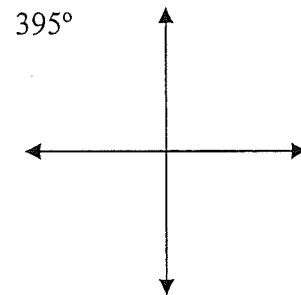
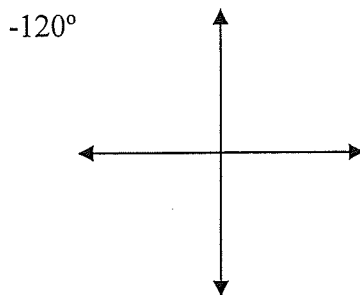
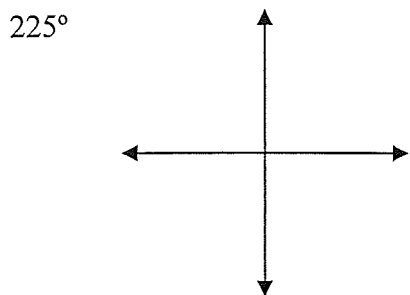


1. _____

2. _____

3. _____

Sketch the angle in standard position. Indicate the angle direction with a curved arrow.



4. _____

5. _____

6. _____

Find the measure of an angle between 0° and 360° coterminal with each given angle.

7. 385°

8. 575°

9. -405°

7. _____

8. _____

9. _____

Find the exact values.

10. $\sin 150^\circ$ _____

11. $\cos 180^\circ$ _____

12. $\tan 45^\circ$ _____

13. $\tan 240^\circ$ _____

14. $\sin -120^\circ$ _____

15. $\cos 135^\circ$ _____

16. $\sin -225^\circ$ _____

17. $\cos 90^\circ$ _____

18. $\tan 90^\circ$ _____

19. $\sin \frac{\pi}{4} =$ _____

20. $\cos \frac{\pi}{6} =$ _____

21. $\tan \frac{\pi}{3} =$ _____

22. $\sin \pi =$ _____

23. $\cos \frac{\pi}{2} =$ _____

24. $\tan \frac{2\pi}{3} =$ _____

Write each measure in radians. Express the answer in terms of π and also as a decimal rounded to the nearest tenth. Show your work.

25. $315^\circ =$ _____

26. $-450^\circ =$ _____

Write each measure in degrees. Show your work.

27. $\frac{5\pi}{3} =$ _____

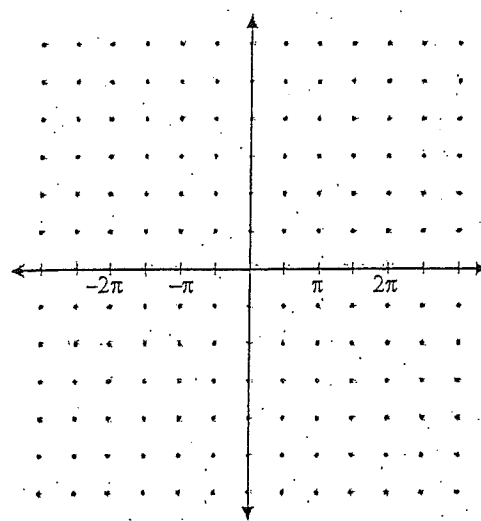
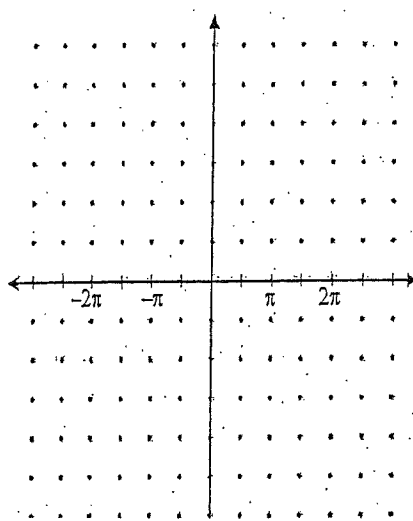
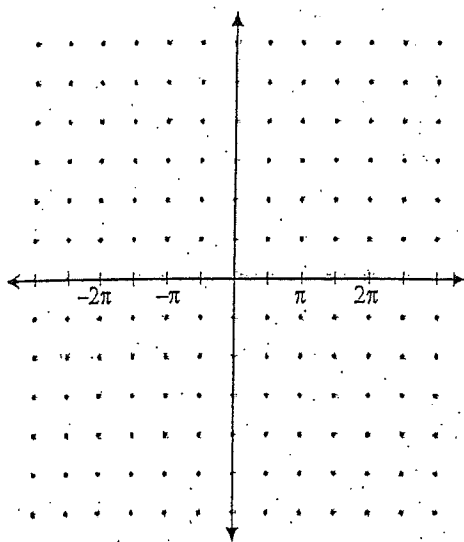
28. $\frac{7\pi}{4} =$ _____

Graph the following sine and cosine functions for $-2\pi \leq t \leq 2\pi$. Label your graphs.

29. $f(x) = 2 \cos x - 3$

30. $f(x) = -3 \sin x + 1$

31. $f(x) = -\cos x - 1$



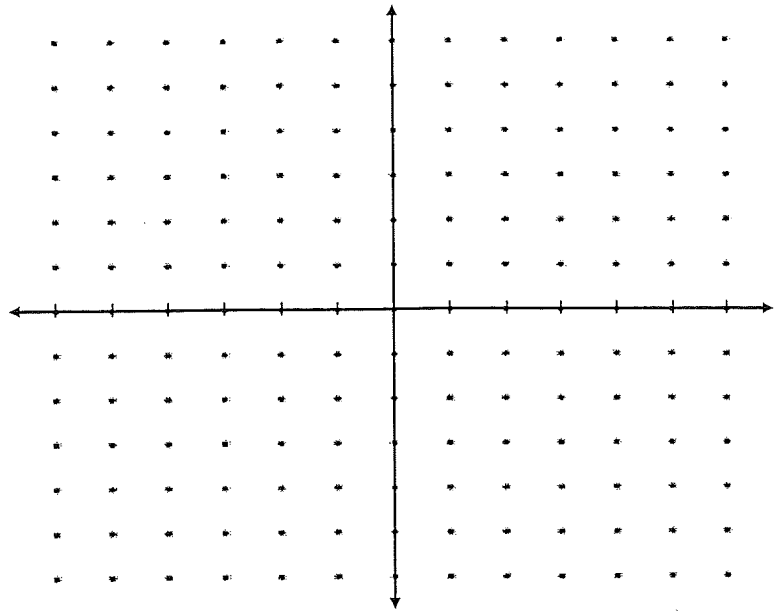
32 Graph $f(t) = 2 \sin 2t - 3$

Amplitude: _____

Period: _____

Increments: _____

V. Shift: _____



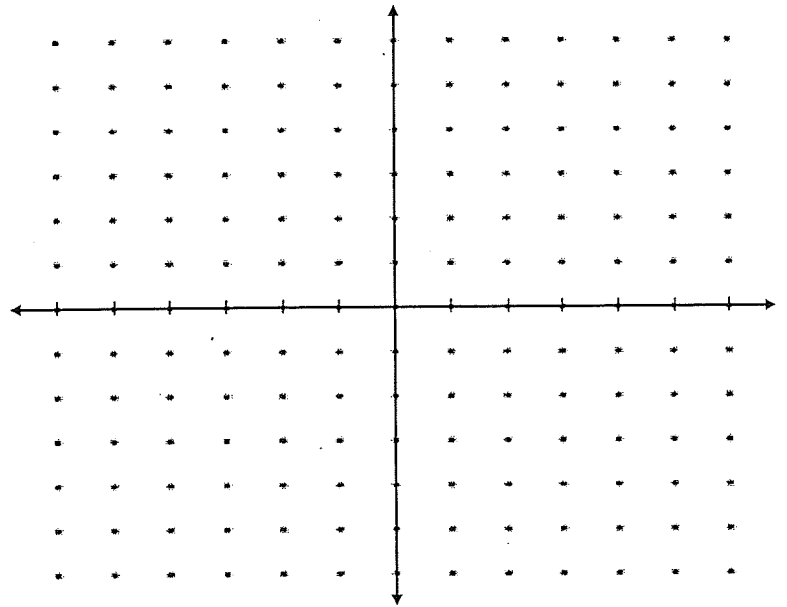
33 Graph $f(t) = -2 \sin \frac{1}{2}t - 1$

Amplitude: _____

Period: _____

Increments: _____

V. Shift: _____



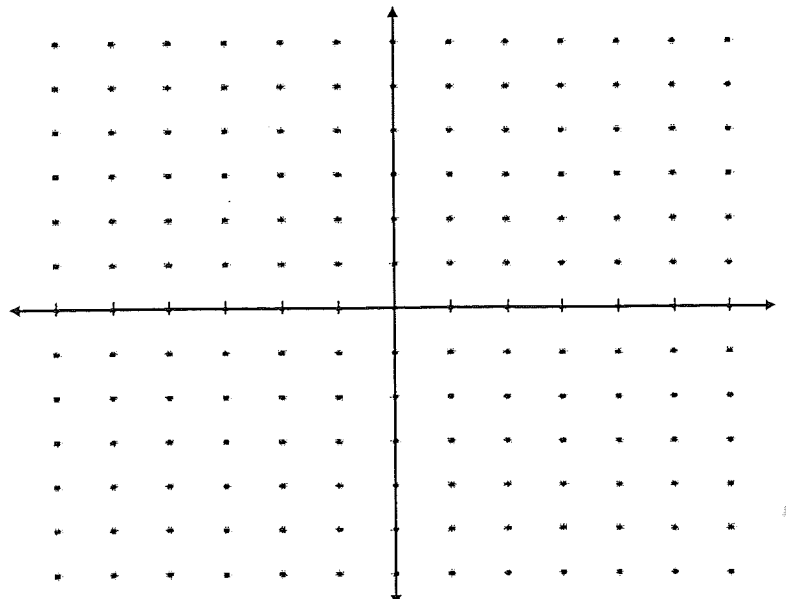
35 Graph $f(t) = 3 \sin 4t + 2$

Amplitude: _____

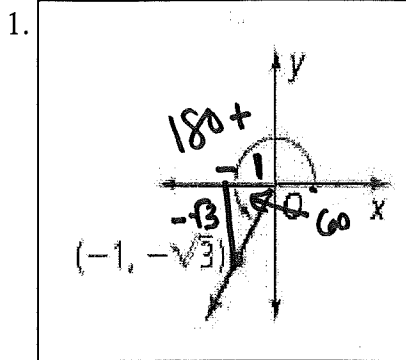
Period: _____

Increments: _____

V. Shift: _____

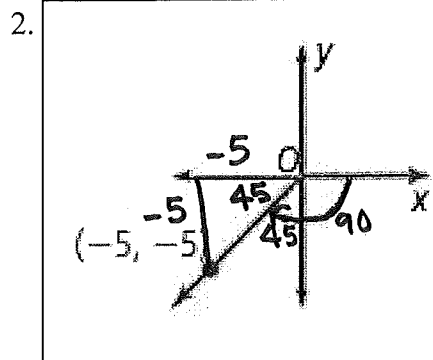


Find the angle measure of



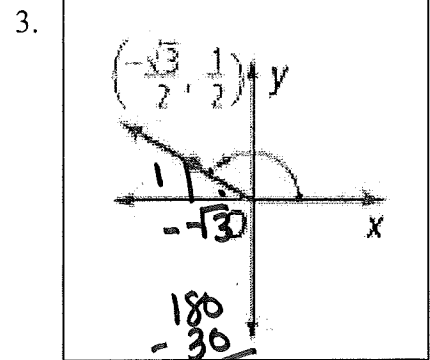
240°

1. _____



-135°

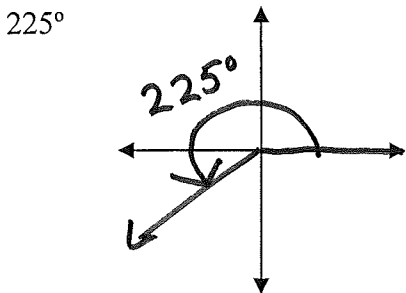
2. _____



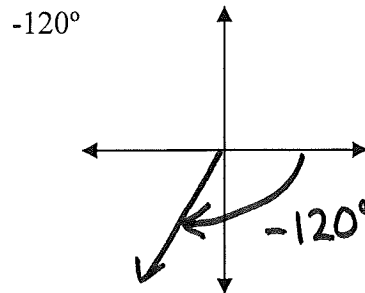
150°

3. _____

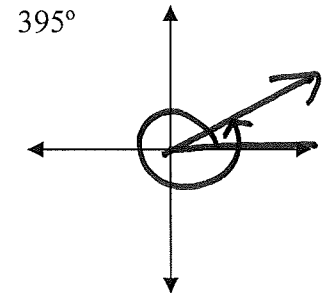
Sketch the angle in standard position. Indicate the angle direction with a curved arrow.



4. _____



5. _____



6. _____

Find the measure of an angle between 0° and 360° coterminal with each given angle.

7. 385°
 -360

7. 25°

8. 575°
 -360°

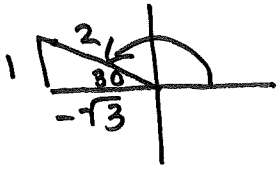
8. 215°

9. -405°
 $+360$
 -45°

9. 315°

Find the exact values.

10. $\sin 150^\circ = \frac{1}{2}$

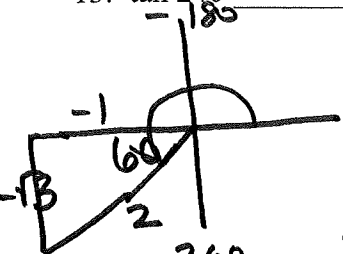


11. $\cos 180^\circ = \frac{-1}{1} = -1$

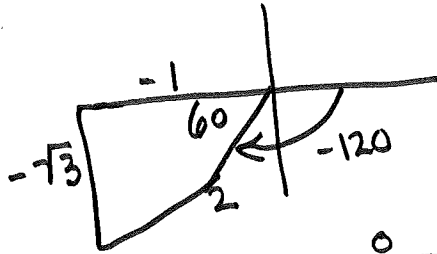
$\cos = \frac{x}{r}$

12. $\tan 45^\circ = \frac{1}{1} = 1$

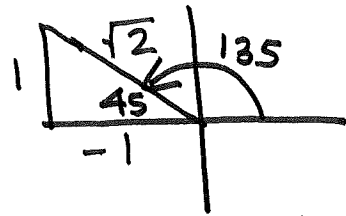
13. $\tan 240^\circ = \frac{-\sqrt{3}}{-1} = \sqrt{3}$



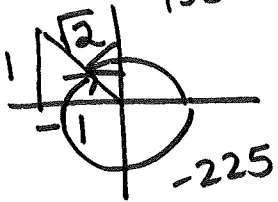
14. $\sin -120^\circ = \frac{-\sqrt{3}}{2}$



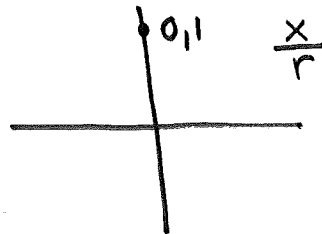
15. $\cos 135^\circ = \frac{-1}{\sqrt{2}}$



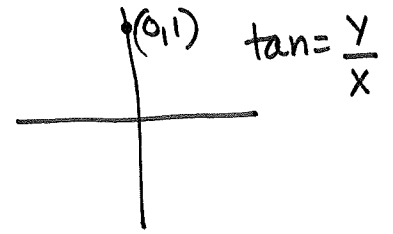
16. $\sin -225^\circ = \frac{1}{\sqrt{2}}$



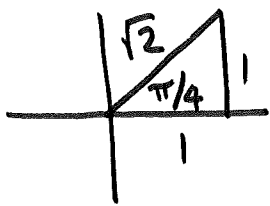
17. $\cos 90^\circ = \frac{0}{1} = 0$



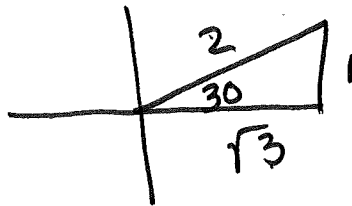
18. $\tan 90^\circ = \frac{1}{0} = \text{undef.}$



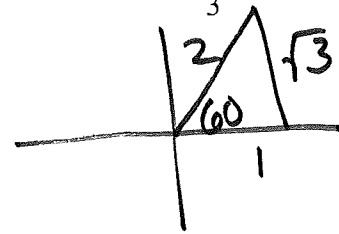
19. $\sin \frac{\pi}{4} = \frac{1}{\sqrt{2}}$



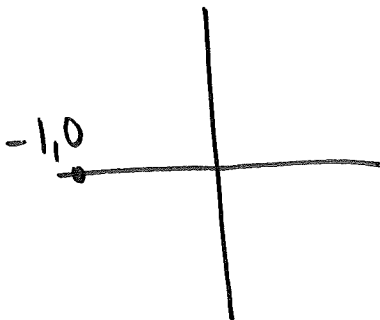
20. $\cos \frac{\pi}{6} = \frac{\sqrt{3}}{2}$



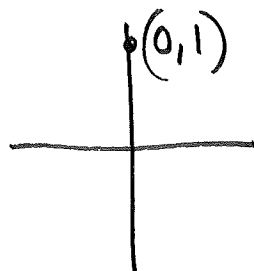
21. $\tan \frac{\pi}{3} = \frac{\sqrt{3}}{1} = \sqrt{3}$



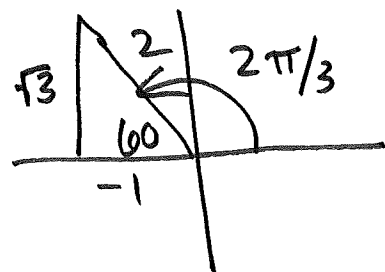
22. $\sin \pi = \frac{0}{1} = 0$



23. $\cos \frac{\pi}{2} = \frac{0}{1} = 0$



24. $\tan \frac{2\pi}{3} = \frac{\sqrt{3}}{-1} = -\sqrt{3}$



$$\pi = 180^\circ$$

Write each measure in radians. Express the answer in terms of π and also as a decimal rounded to the nearest tenth. Show your work.

$$25. 315^\circ = \frac{315^\circ}{1} \cdot \frac{\pi}{180^\circ} = \frac{7\pi}{4}$$

5.49
5.5

$$26. -450^\circ = \frac{-450^\circ}{1} \cdot \frac{\pi}{180^\circ} = -\frac{5\pi}{2}$$

-2.5π

-7.9 rad.

Write each measure in degrees. Show your work.

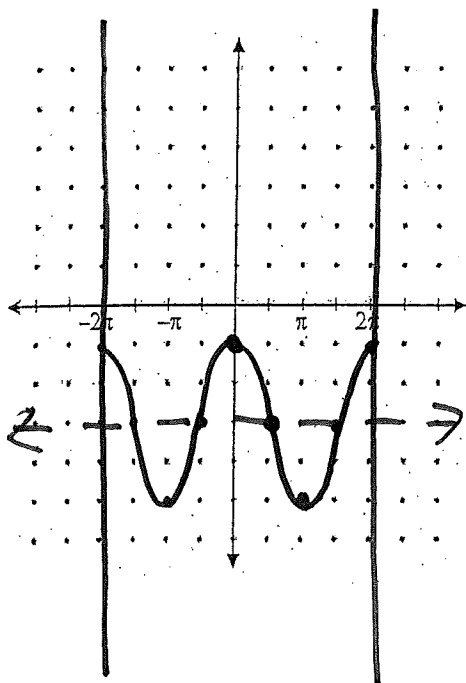
$$27. \frac{5\pi}{3} = \frac{5\pi}{3} \cdot \frac{180^\circ}{\pi}$$

300°

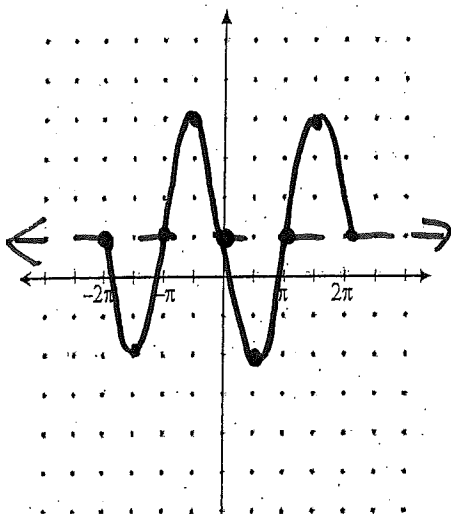
$$28. \frac{7\pi}{4} = \frac{7\pi}{4} \cdot \frac{180}{\pi} = 315^\circ$$

Graph the following sine and cosine functions for $-2\pi \leq t \leq 2\pi$. Label your graphs.

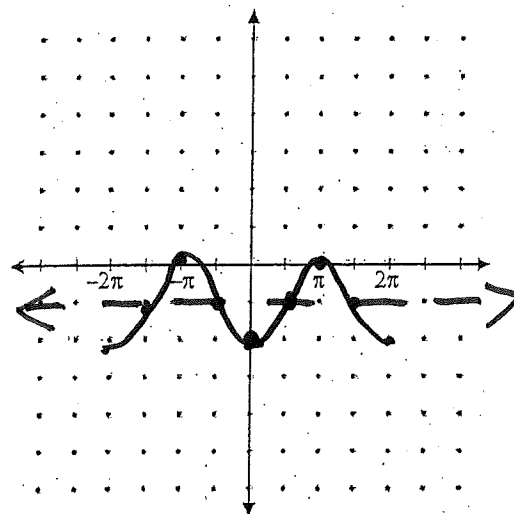
29. $f(x) = 2 \cos x - 3$



30. $f(x) = -3 \sin x + 1$

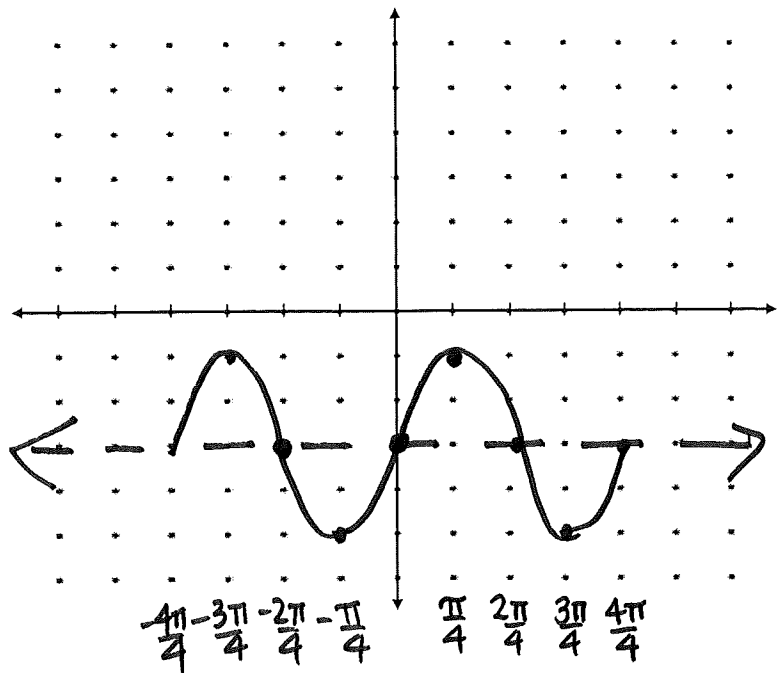


31. $f(x) = -\cos x - 1$



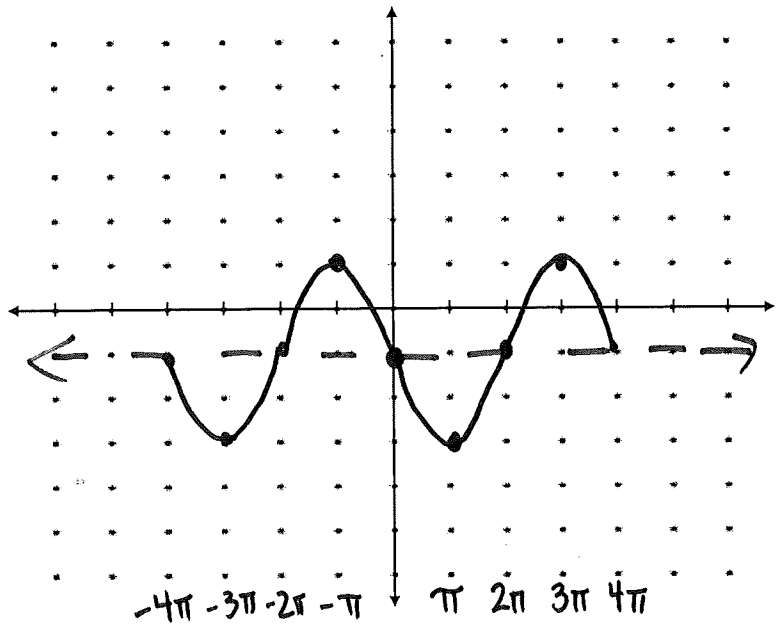
32 Graph $f(t) = 2 \sin 2t - 3$

Amplitude: 2
 Period: $\frac{2\pi}{b} = \frac{2\pi}{2} = \pi$
 Increments: $\frac{\pi}{4}$
 V. Shift: 3 down



33 Graph $f(t) = -2 \sin \frac{1}{2}t - 1$

Amplitude: 2
 Period: $\frac{2\pi}{\frac{1}{2}} = 4\pi$
 Increments: π
 V. Shift: 1 down



35 Graph $f(t) = 3 \sin 4t + 2$

Amplitude: 3
 Period: $\frac{2\pi}{4} = \frac{\pi}{2}$
 Increments: $\frac{\pi}{2} \cdot \frac{1}{4} = \frac{\pi}{8}$
 V. Shift: 2 up

