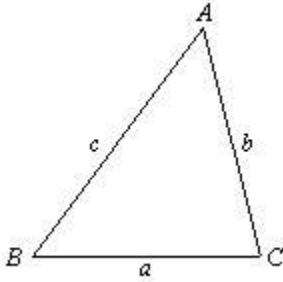


Precalculus-G11-Ch4-Qs.Bank

Indicate the answer choice that best completes the statement or answers the question.

1. Determine whether $\triangle ABC$ should be solved by using the Law of Sines or the Law of Cosines. Then solve the triangle.

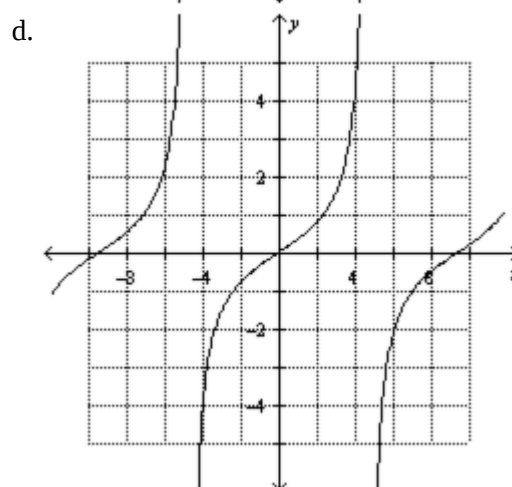
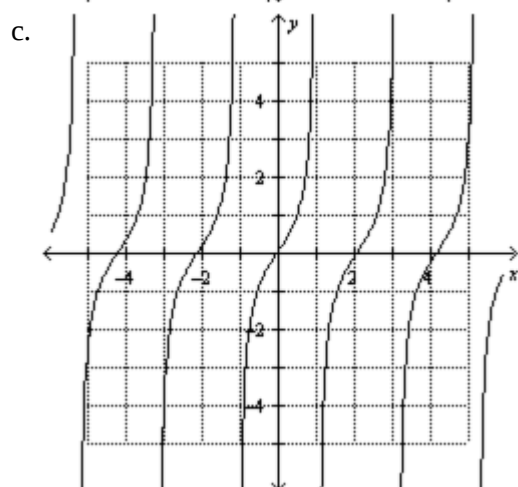
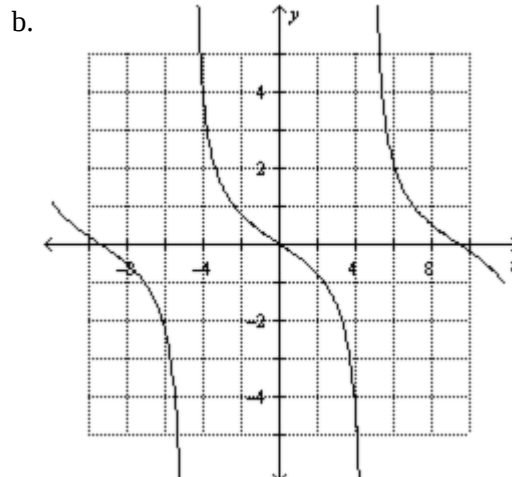
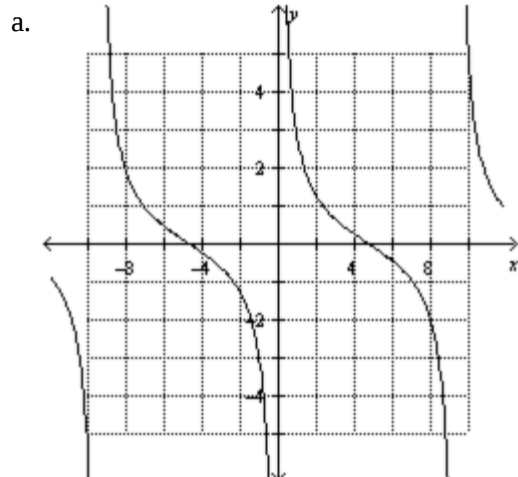


$A = 35^\circ, b = 13, a = 11$

- a. Law of Sines; $B \approx 42.7^\circ, C \approx 102.3^\circ, c \approx 18.7$
- b. Law of Sines; $B \approx 102.3^\circ, C \approx 42.7^\circ, c \approx 18.7$
- c. Law of Cosines; $B \approx 106.2^\circ, C \approx 38.8^\circ, c \approx 18.7$
- d. Law of Cosines; $B \approx 38.8^\circ, C \approx 106.2^\circ, c \approx 18.7$

Precalculus-G11-Ch4-Qs.Bank

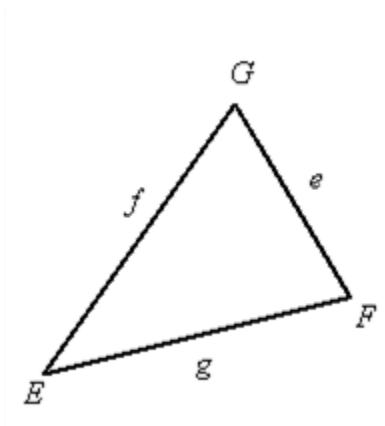
2. Graph $y = \tan\left(\frac{1}{3}\theta + 2\pi\right)$



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Precalculus-G11-Ch4-Qs.Bank

3. Find all solutions for the triangle with $f = 15$, $e = 14$, $F = 33^\circ$. If no solutions exist, write *none*. Round to the nearest tenth.



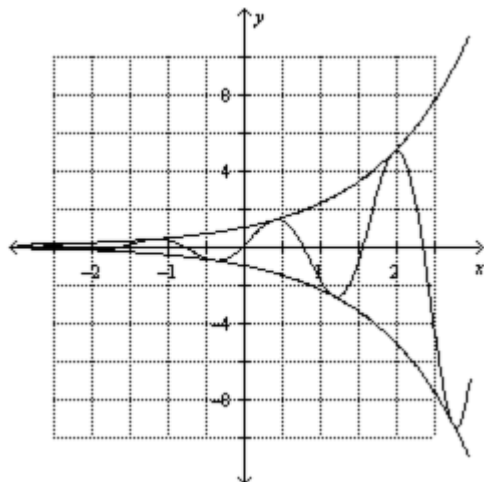
- a. $g = 23.6$, $E = 27.6^\circ$, $G = 123.4^\circ$ b. $g = 24.6$, $E = 30.6^\circ$, $G = 116.4^\circ$
c. $g = 25.6$, $E = 29.6^\circ$, $G = 111.4^\circ$ d. none

Precalculus-G11-Ch4-Qs.Bank

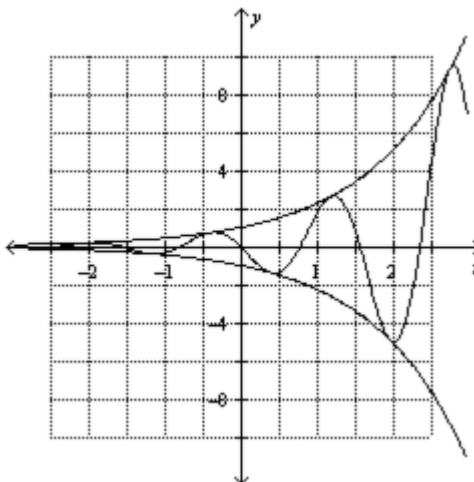
Graph $f(x)$, $-f(x)$, and the given function.

4. $y = 2.25^x \sin 4x$

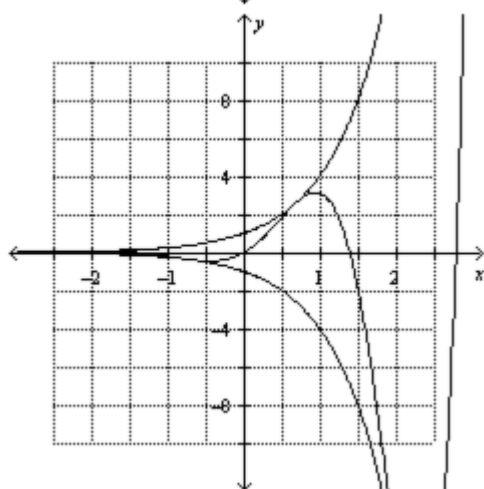
a.



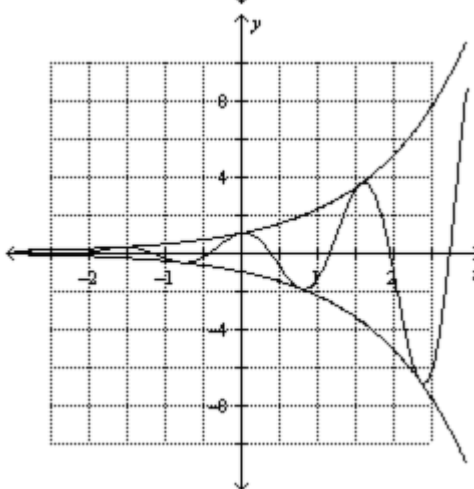
b.



c.



d.



Find the value of each expression using the given information.

5. If $\cos \theta = 0.54$, find $\sin\left(\theta - \frac{\pi}{2}\right)$.

- a. -0.54
- b. 0.54
- c. $\frac{\pi}{2} - \theta$
- d. $-\sin \theta$

Precalculus-G11-Ch4-Qs.Bank

6. Find the value of $\tan\left(\sin^{-1}\left(\frac{1}{2}\right)\right)$.

a. $-\frac{\sqrt{3}}{3}$ b. $-\sqrt{3}$

c. $\frac{\sqrt{3}}{3}$ d. $\sqrt{3}$

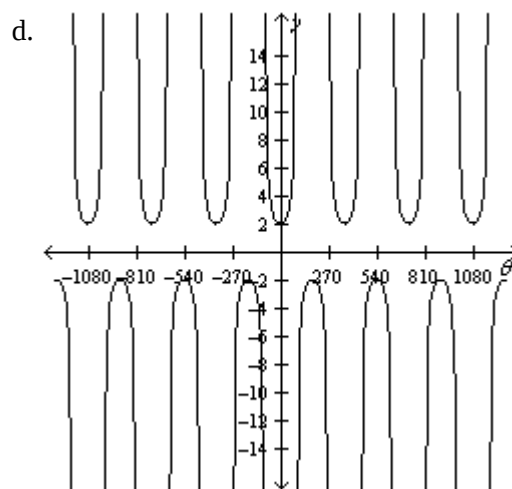
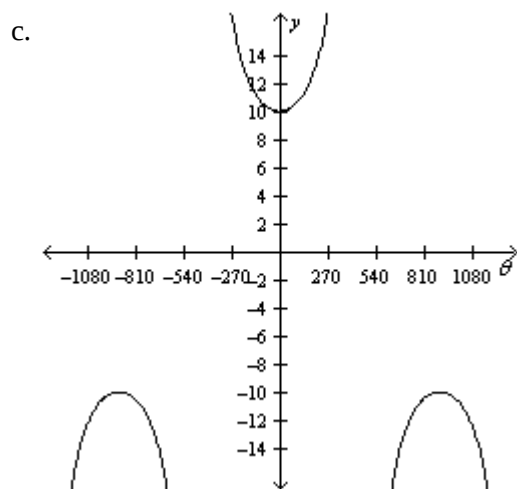
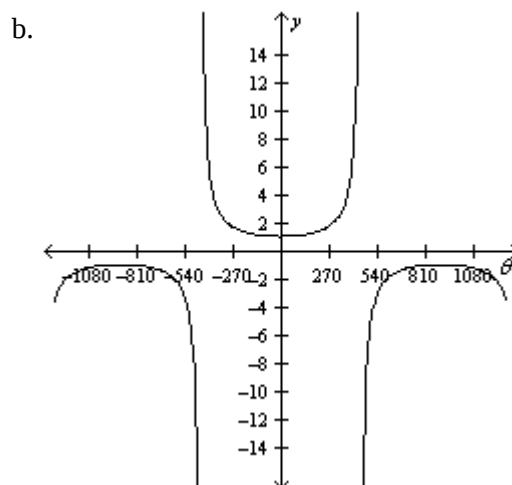
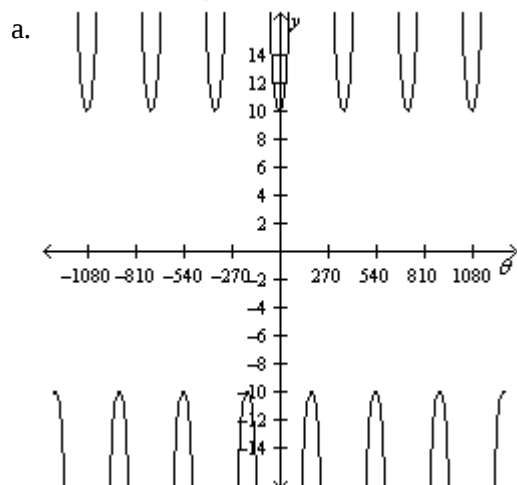
7. Evaluate $\sin\left(\operatorname{Arccos}\left(-\frac{7}{\sqrt{130}}\right)\right)$.

a. $-\frac{9}{\sqrt{130}}$ b. $\frac{9}{\sqrt{130}}$

c. $-\frac{\sqrt{130}}{\sqrt{233}}$ d. $\frac{\sqrt{130}}{\sqrt{233}}$

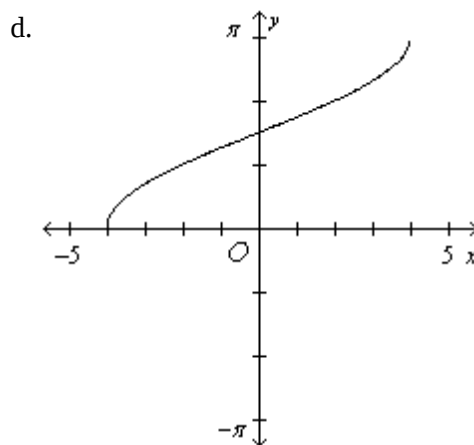
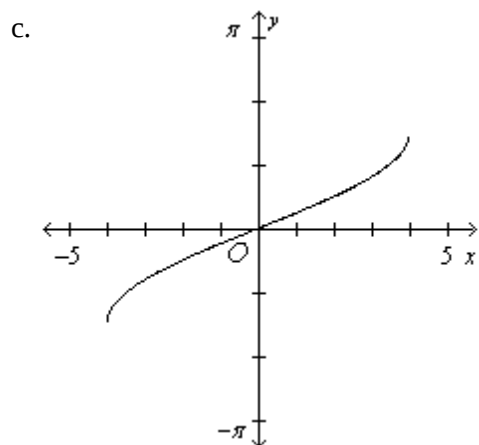
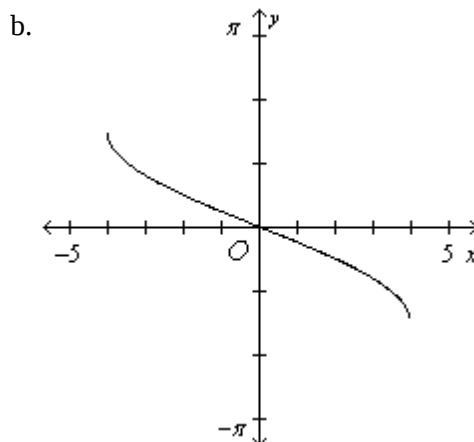
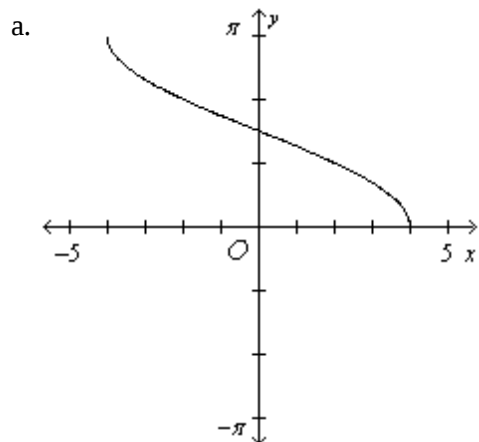
Precalculus-G11-Ch4-Qs.Bank

8. Graph $y = 10 \sec \frac{1}{5} \theta$.



Precalculus-G11-Ch4-Qs.Bank

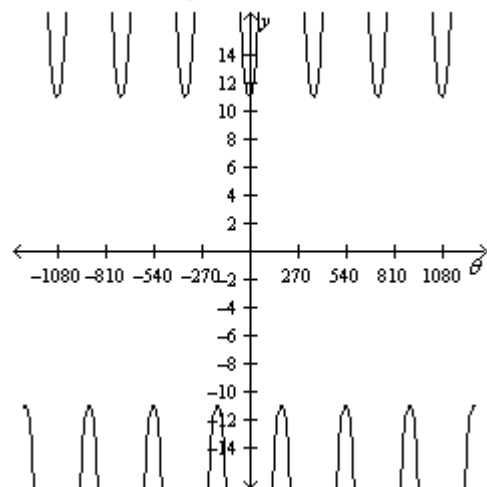
9. Graph $y = \cos^{-1}\left(-\frac{1}{4}x\right)$ on the interval $-5 \leq x \leq 5$.



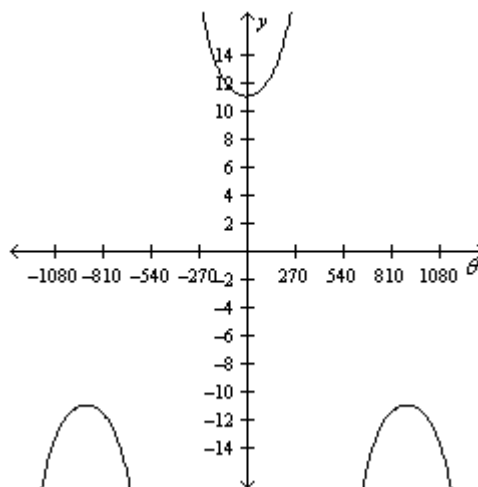
Precalculus-G11-Ch4-Qs.Bank

10. Graph $y = 11 \sec \frac{1}{5} \theta$.

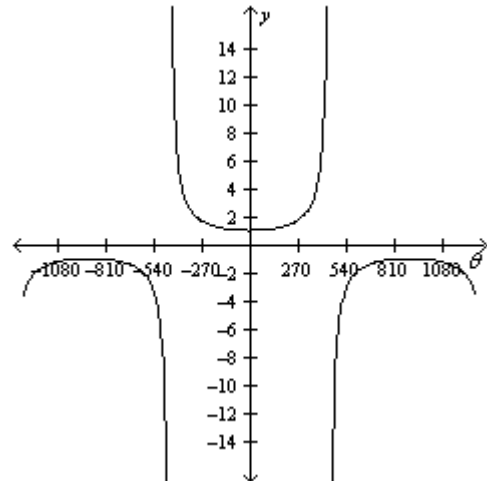
a.



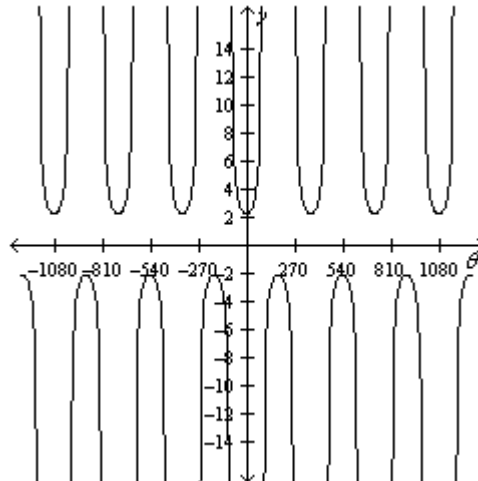
b.



c.



d.



11. Evaluate $\sin \left(\arccos \left(-\frac{7}{\sqrt{193}} \right) \right)$.

a.

$$-\frac{\sqrt{193}}{\sqrt{296}}$$

b.

$$\frac{12}{\sqrt{193}}$$

c.

$$\frac{\sqrt{193}}{\sqrt{296}}$$

d.

$$-\frac{12}{\sqrt{193}}$$

Precalculus-G11-Ch4-Qs.Bank

12. Find the area of the triangle with $a = 12.9$, $b = 12.4$, and $c = 17.1$. Round to the nearest tenth.

- a. 80.1 units^2 b. 79.1 units^2
 c. 79.7 units^2 d. 82.7 units^2

In the unit circle a point $(1, -2)$ lies on the terminal side of an angle θ in standard position. Find the exact value of $\cot \theta$

13. $(-1, 5)$

- a. $\sin \theta = \frac{\sqrt{26}}{5}$, $\cos \theta = -\sqrt{26}$, $\tan \theta = -\frac{1}{5}$, $\csc \theta = \frac{5\sqrt{26}}{26}$, $\sec \theta = -\frac{\sqrt{26}}{26}$, $\cot \theta = -5$
 b. $\sin \theta = -\frac{\sqrt{26}}{26}$, $\cos \theta = \frac{5\sqrt{26}}{26}$, $\tan \theta = -5$, $\csc \theta = -\sqrt{26}$, $\sec \theta = \frac{\sqrt{26}}{5}$, $\cot \theta = -\frac{1}{5}$
 c. $\sin \theta = \frac{5\sqrt{26}}{26}$, $\cos \theta = -\frac{\sqrt{26}}{26}$, $\tan \theta = -5$, $\csc \theta = \frac{\sqrt{26}}{5}$, $\sec \theta = -\sqrt{26}$, $\cot \theta = -\frac{1}{5}$
 d. $\sin \theta = 1$, $\cos \theta = -\frac{1}{5}$, $\tan \theta = -5$, $\csc \theta = 1$, $\sec \theta = -5$, $\cot \theta = -\frac{1}{5}$

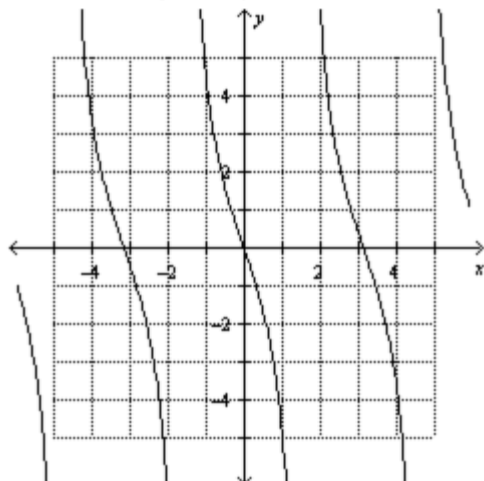
14. Find the area of a sector with a central angle of 170° and a radius of 17 millimeters. Round to the nearest tenth.

- a. 857.5 mm^2 b. 100.9 mm^2
 c. 428.7 mm^2 d. 25.2 mm^2

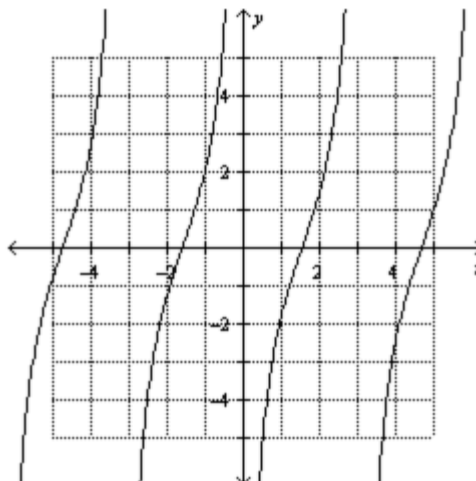
Precalculus-G11-Ch4-Qs.Bank

15. Graph $y = 3 \tan\left(\theta - \frac{\pi}{2}\right)$

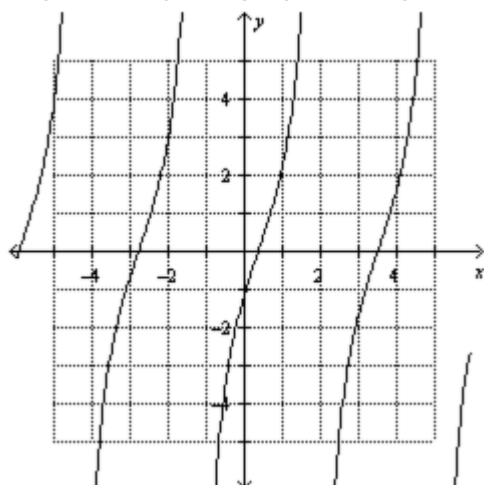
a.



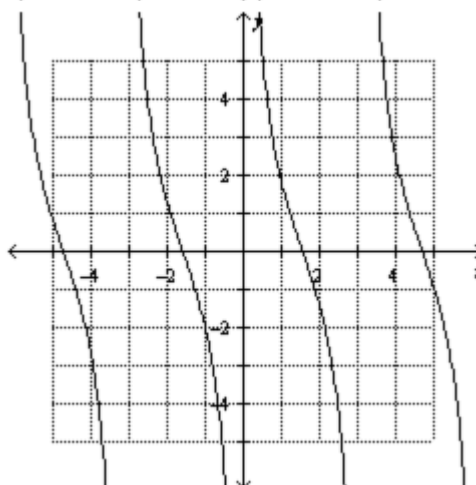
b.



c.



d.

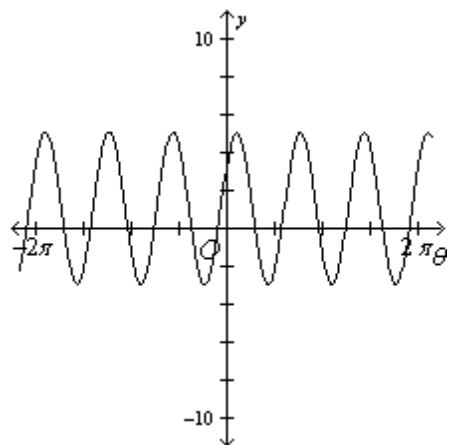


Precalculus-G11-Ch4-Qs.Bank

16. Graph the function. Which choice gives the amplitude, period, phase shift, and vertical shift for the function?

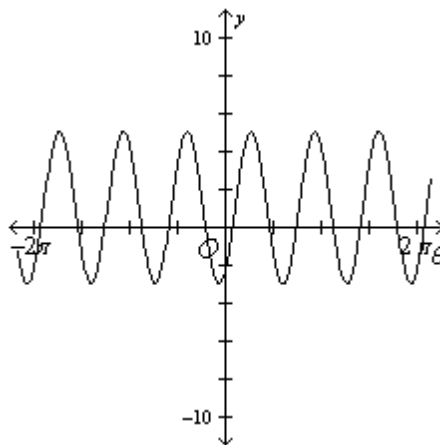
$$y = 4 \sin \left(3\theta - \frac{1}{3}\pi \right) + 1$$

a.



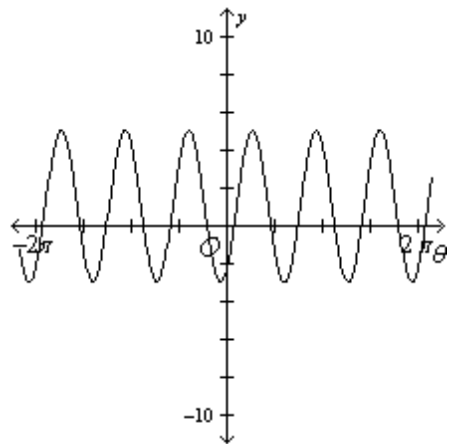
$$-4; \frac{2}{3}\pi; \frac{1}{9}\pi; 1$$

b.



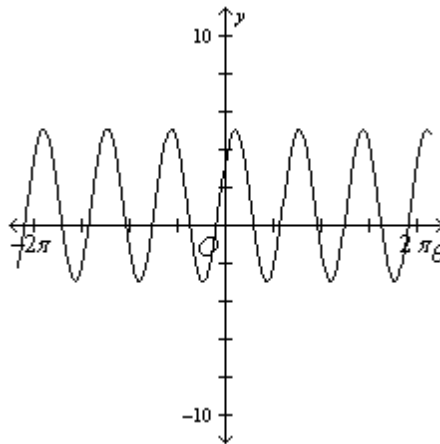
$$4; \frac{2}{3}\pi; \frac{1}{9}\pi; 1$$

c.



$$-4; \frac{2}{3}\pi; \frac{1}{9}\pi; -1$$

d.



$$4; \frac{2}{3}\pi; \frac{1}{9}\pi; 1$$

Precalculus-G11-Ch4-Qs.Bank

17. Suppose θ is an angle in the standard position whose terminal side is in Quadrant IV and $\cot \theta = -\frac{2}{17}$. Find the exact values of the five remaining trigonometric functions of θ .

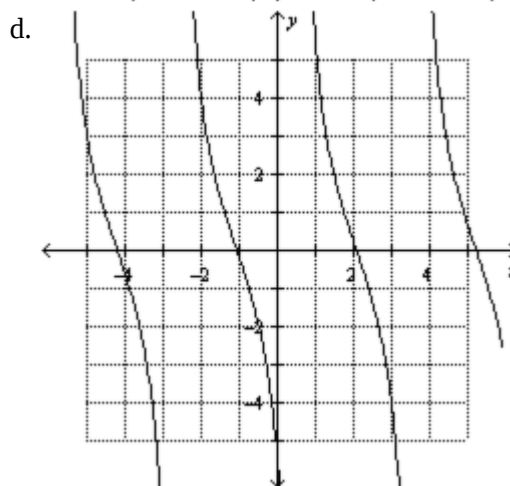
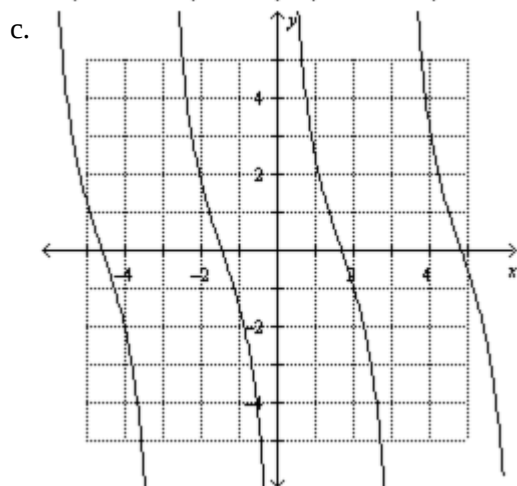
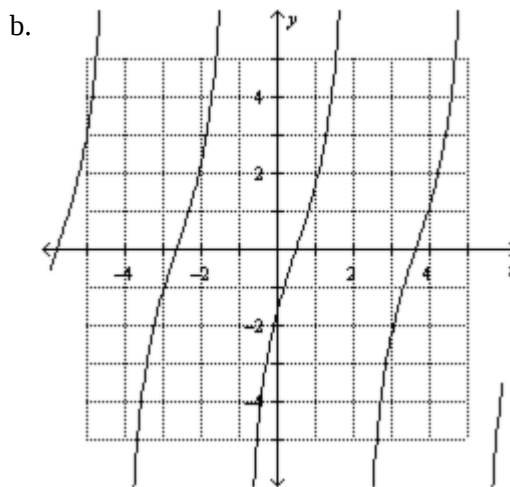
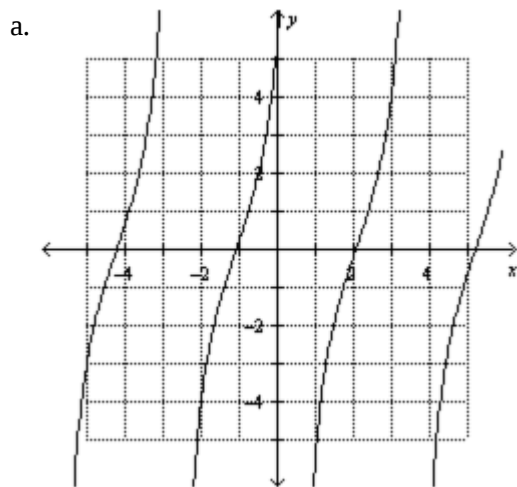
a. $\sin \theta = -\frac{2}{\sqrt{293}}, \cos \theta = \frac{17}{\sqrt{293}}, \csc \theta = -\frac{\sqrt{293}}{2}, \sec \theta = \frac{\sqrt{293}}{17}, \tan \theta = -\frac{17}{2}$

b. $\sin \theta = -\frac{17}{\sqrt{293}}, \cos \theta = \frac{2}{\sqrt{293}}, \csc \theta = -\frac{\sqrt{293}}{17}, \sec \theta = \frac{\sqrt{293}}{2}, \tan \theta = -\frac{17}{2}$

c. $\sin \theta = -\frac{17}{\sqrt{293}}, \cos \theta = \frac{2}{\sqrt{293}}, \csc \theta = -\frac{\sqrt{293}}{2}, \sec \theta = \frac{\sqrt{293}}{17}, \tan \theta = -\frac{17}{2}$

d. $\sin \theta = \frac{\sqrt{293}}{17}, \cos \theta = -\frac{\sqrt{293}}{2}, \csc \theta = \frac{17}{\sqrt{293}}, \sec \theta = -\frac{2}{\sqrt{293}}, \tan \theta = -\frac{2}{17}$

18. Graph $y = 3 \cot\left(\theta - \frac{\pi}{6}\right)$

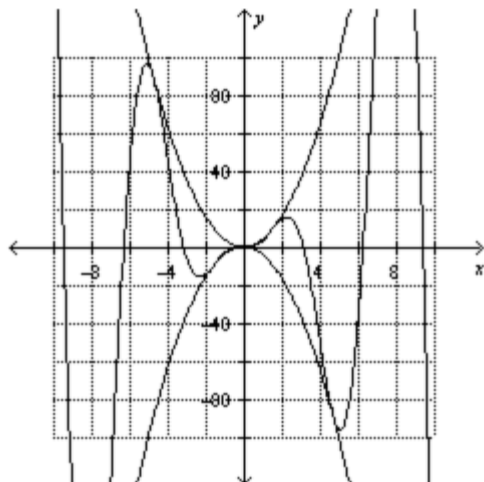


Precalculus-G11-Ch4-Qs.Bank

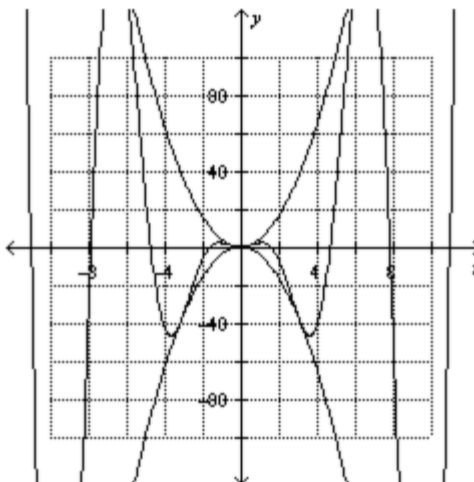
Graph $f(x)$, $-f(x)$, and the given function.

19. $y = 4x^2 \cos x$

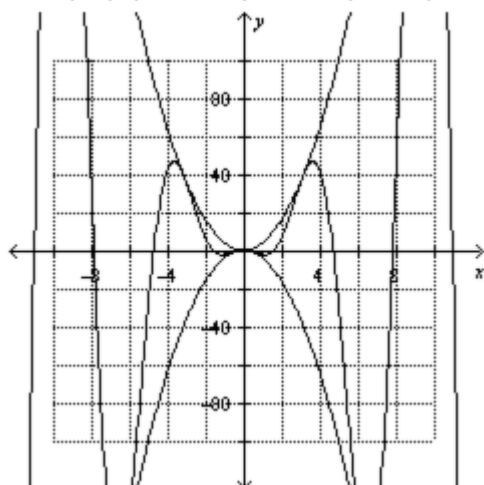
a.



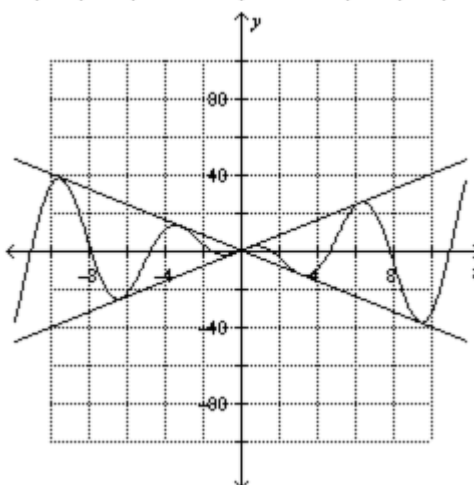
b.



c.



d.



20. Find the exact value of $\cos (1140)^\circ$.

a. $\frac{1}{\sqrt{2}}$

b. $\sqrt{3}$

c. $\frac{1}{2}$

d. $\frac{\sqrt{3}}{2}$

Precalculus-G11-Ch4-Qs.Bank

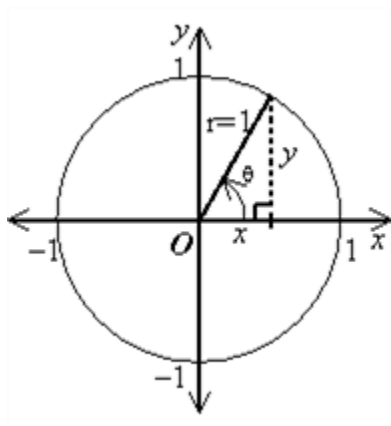
21. Find the value of $\cot\left(\cos^{-1}\left(-\frac{1}{2}\right)\right)$.

- a. $\frac{\sqrt{3}}{3}$ b. $-\sqrt{3}$
 c. $-\frac{\sqrt{3}}{3}$ d. $\sqrt{3}$

22. Change 1.92 radians to degree measure. Round to the nearest tenth.

- a. 290° b. 200°
 c. 110° d. 470°

23. Use the unit circle to find the value of $\cot(-90^\circ)$.



- a. $\cot(-90^\circ) = -1$ b. $\cot(-90^\circ) = 0$
 c. $\cot(-90^\circ) = 1$ d. undefined

24. Find the value of $\tan\left(\sin^{-1}\left(-\frac{1}{2}\right)\right)$.

- a. $\sqrt{3}$ b. $\frac{\sqrt{3}}{3}$
 c. $-\frac{\sqrt{3}}{3}$ d. $-\sqrt{3}$

Precalculus-G11-Ch4-Qs.Bank

25. Write $62^\circ 21' 47''$ as a decimal to the nearest thousandth.

- a. 62.413° b. 62.366°
c. 62.363° d. 62.373°

In the unit circle a point $(1, -2)$ lies on the terminal side of an angle θ in standard position. Find the exact value of $\cot \theta$

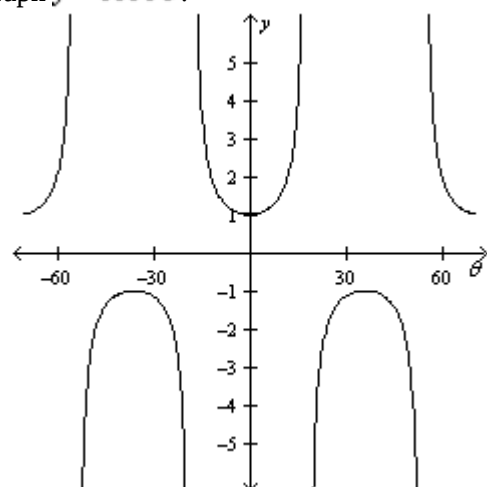
26. $(-3, -4)$

- a. $\sin \theta = -\frac{4}{5}, \cos \theta = -\frac{3}{5}, \tan \theta = \frac{4}{3}, \csc \theta = -\frac{5}{4}, \sec \theta = -\frac{5}{3}, \cot \theta = \frac{3}{4}$
b. $\sin \theta = -\frac{3}{5}, \cos \theta = -\frac{4}{5}, \tan \theta = \frac{4}{3}, \csc \theta = -\frac{5}{3}, \sec \theta = -\frac{5}{4}, \cot \theta = \frac{3}{4}$
c. $\sin \theta = -\frac{5}{4}, \cos \theta = -\frac{5}{3}, \tan \theta = \frac{3}{4}, \csc \theta = -\frac{4}{5}, \sec \theta = -\frac{3}{5}, \cot \theta = \frac{4}{3}$
d. $\sin \theta = -\frac{4\sqrt{7}}{7}, \cos \theta = -\frac{3\sqrt{7}}{7}, \tan \theta = \frac{4}{3}, \csc \theta = -\frac{\sqrt{7}}{4}, \sec \theta = -\frac{\sqrt{7}}{3}, \cot \theta = \frac{3}{4}$

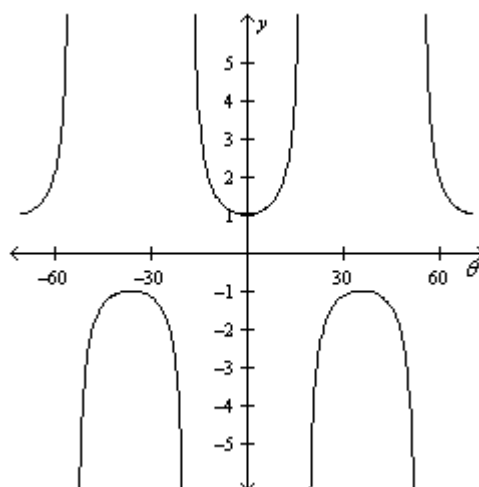
Precalculus-G11-Ch4-Qs.Bank

27. Graph $y = \sec 5\theta$.

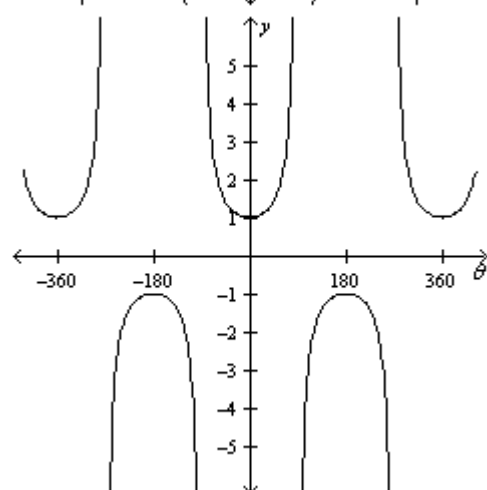
a.



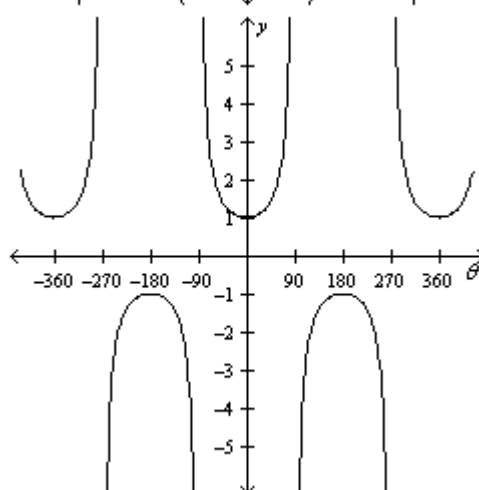
b.



c.



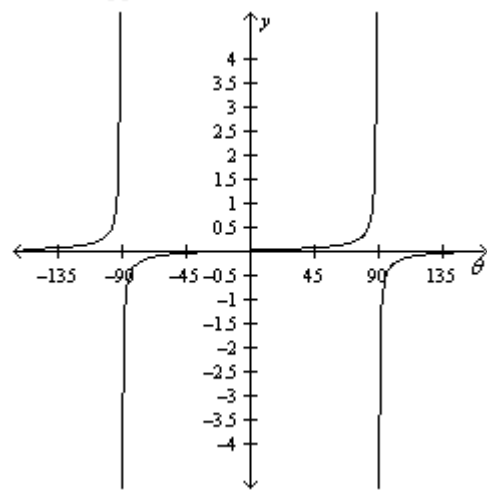
d.



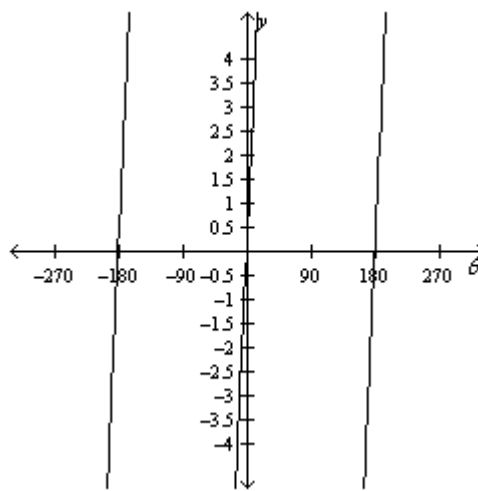
Precalculus-G11-Ch4-Qs.Bank

28. Graph $y = \frac{1}{18} \tan \theta$.

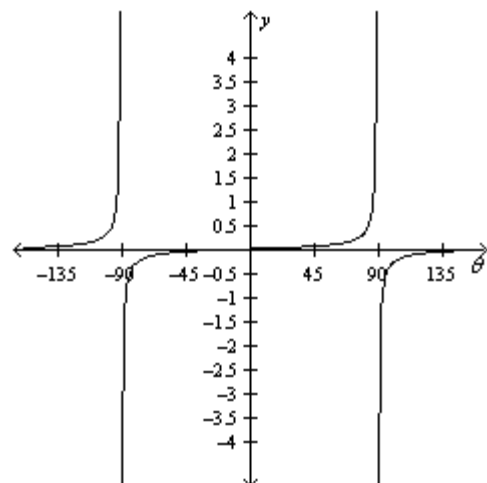
a.



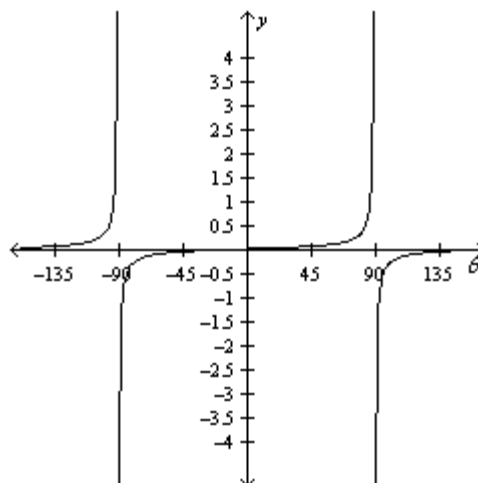
b.



c.



d.



29. Write $\frac{7\pi}{60}$ in degrees

- a. 210° b. 21°
c. 1.5° d. $21\pi^\circ$

30. Find the exact value of $\cos\left(-\frac{5\pi}{4}\right)$.

- a. 1 b. $-\frac{\sqrt{2}}{2}$
c. $-\frac{\sqrt{3}}{2}$ d. 0

Precalculus-G11-Ch4-Qs.Bank

Find the value of each expression using the given information.

31. If $\sin \theta = \frac{2}{3}$ and $0^\circ < \theta < 90^\circ$, find $\cos \theta$.

a. $\frac{\sqrt{10}}{3}$

b. $\frac{\sqrt{5}}{2}$

c. $\frac{\sqrt{5}}{3}$

d. $\frac{3}{2}$

32. Change 90.46° to degrees, minutes, and seconds.

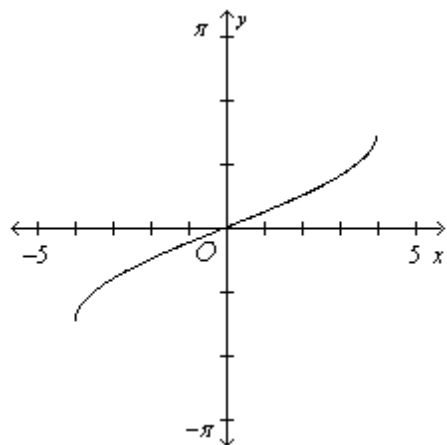
a. $90^\circ 43' 44''$ b. $90^\circ 27' 36''$

c. $90^\circ 44' 60''$ d. $90^\circ 41' 43''$

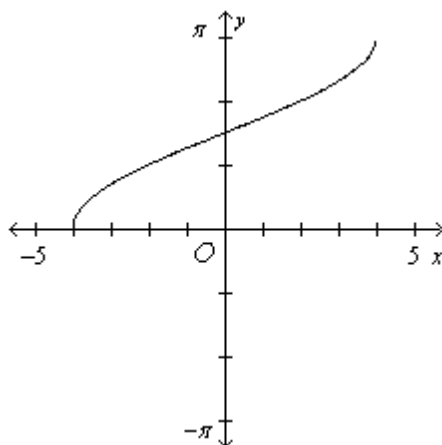
Precalculus-G11-Ch4-Qs.Bank

33. Graph $y = \sin^{-1}\left(-\frac{1}{4}x\right)$ on the interval $-5 \leq x \leq 5$.

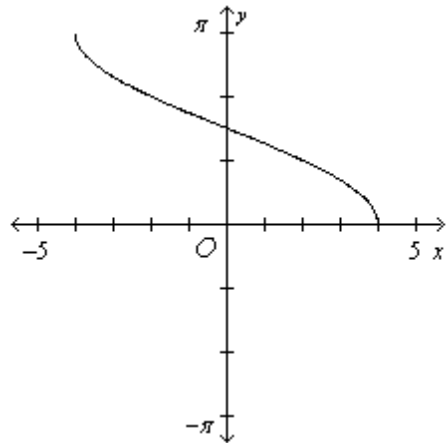
a.



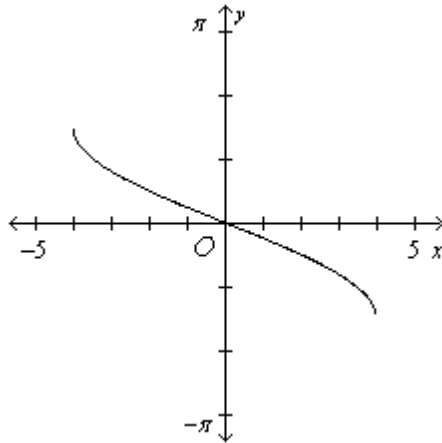
b.



c.



d.

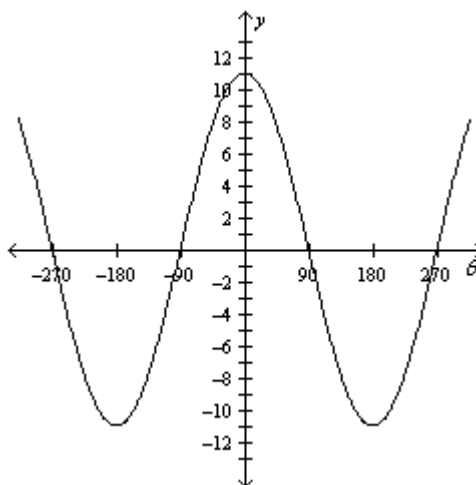
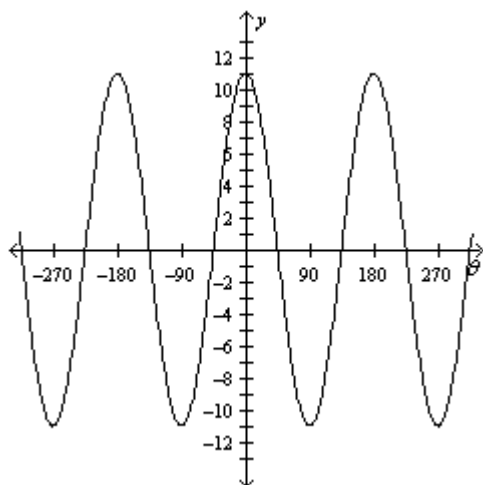


Precalculus-G11-Ch4-Qs.Bank

34. Find the amplitude of $y = 11 \cos \theta$. Then graph the function.

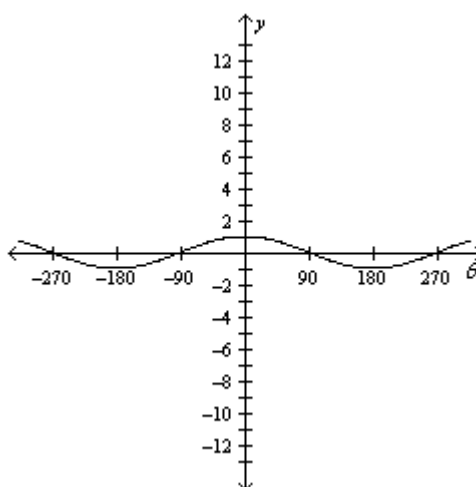
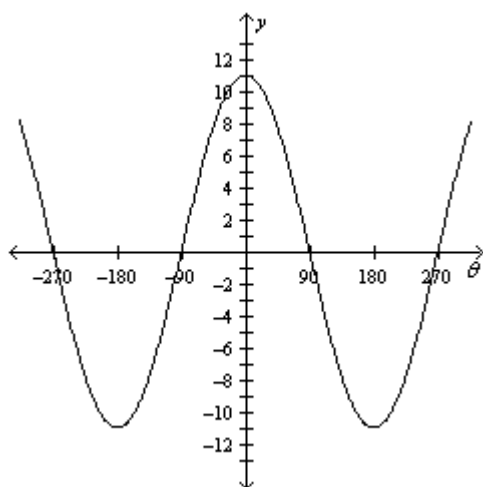
a. amplitude: 11

b. amplitude: does not exist



c. amplitude: 11

d. amplitude: 1



Simplify each expression.

35. $\sin^2 \theta \cos^2 \theta - \cos^2 \theta$

a. $-\cos^2 \theta$

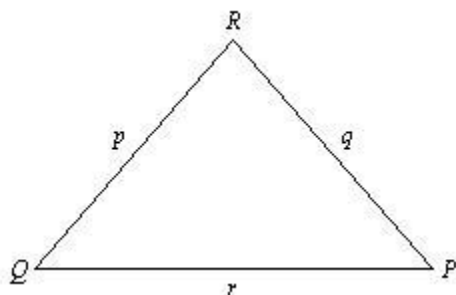
b. $1 - \cos^4 \theta$

c. $\cos^4 \theta$

d. $-\cos^4 \theta$

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36. Solve $\triangle PQR$.



$Q = 53^\circ, p = 14, q = 14.6$

- a. $P = 77^\circ, R = 50^\circ, r = 15$ b. $P = 50^\circ, R = 77^\circ, r = 17.8$
 c. $P = 77^\circ, R = 50^\circ, r = 17.8$ d. $P = 50^\circ, R = 77^\circ, r = 15$

In the unit circle a point $(1, -2)$ lies on the terminal side of an angle θ in standard position. Find the exact value of $\cot \theta$

37. $(1, -2)$

- a. $\sin \theta = -\frac{\sqrt{5}}{2}, \cos \theta = \sqrt{5}, \tan \theta = -\frac{1}{2}, \csc \theta = -\frac{2\sqrt{5}}{5}, \sec \theta = \frac{\sqrt{5}}{5}, \cot \theta = -2$
 b. $\sin \theta = -\frac{2\sqrt{5}}{5}, \cos \theta = \frac{\sqrt{5}}{5}, \tan \theta = -2, \csc \theta = -\frac{\sqrt{5}}{2}, \sec \theta = \sqrt{5}, \cot \theta = -\frac{1}{2}$
 c. $\sin \theta = \frac{\sqrt{5}}{5}, \cos \theta = -\frac{2\sqrt{5}}{5}, \tan \theta = -2, \csc \theta = \sqrt{5}, \sec \theta = -\frac{\sqrt{5}}{2}, \cot \theta = -\frac{1}{2}$
 d. $\sin \theta = -\frac{2\sqrt{3}}{3}, \cos \theta = \frac{\sqrt{3}}{3}, \tan \theta = -2, \csc \theta = -\frac{\sqrt{3}}{2}, \sec \theta = \sqrt{3}, \cot \theta = -\frac{1}{2}$

Find the value of each expression using the given information.

38. If $\tan \theta = \frac{7}{2}$ and $0^\circ < \theta < 90^\circ$, find $\sin \theta$.

- a. $\frac{2}{7}$
 b. $\frac{7\sqrt{53}}{53}$
 c. $\frac{7}{\sqrt{53}}$
 d. $\frac{53}{49}$

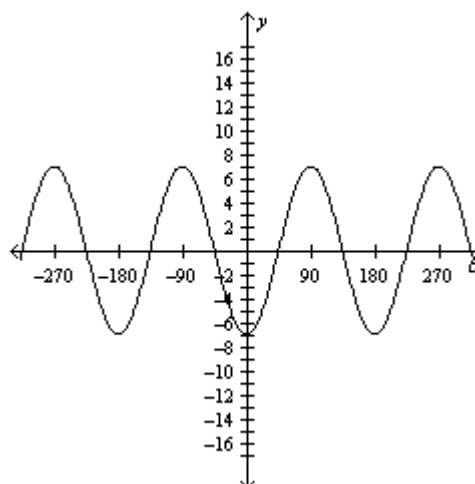
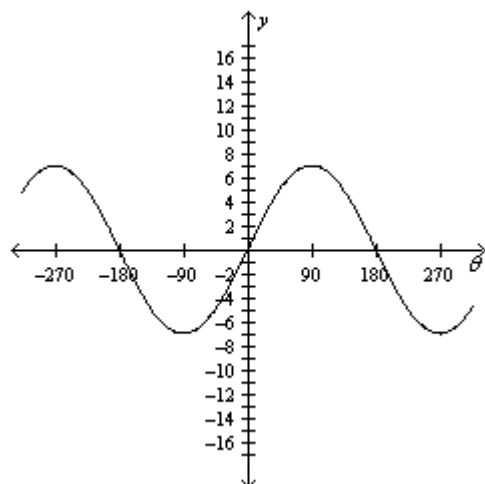
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39. Evaluate $\sin\left(\arccos\left(-\frac{4}{\sqrt{305}}\right)\right)$.

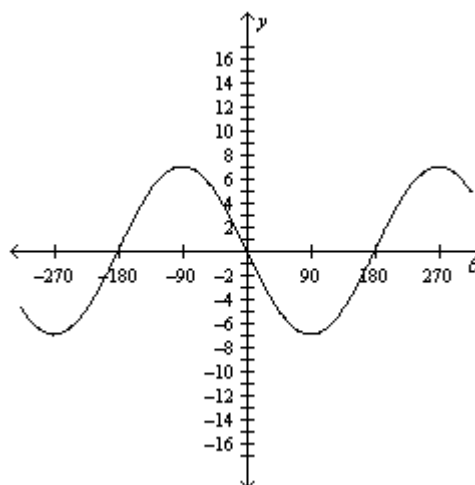
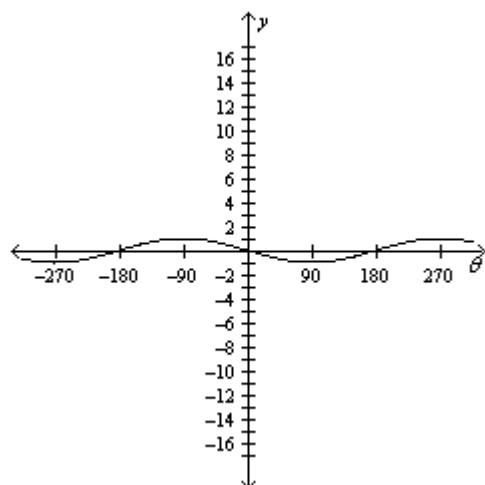
- a. $-\frac{17}{\sqrt{305}}$ b. $-\frac{\sqrt{305}}{\sqrt{408}}$
 c. $\frac{17}{\sqrt{305}}$ d. $\frac{\sqrt{305}}{\sqrt{408}}$

40. Determine the amplitude, period, and phase shift for $y = 7\cos(\theta - 90^\circ)$ and use them to plot the graph of the function.

- a. amplitude = 7; period = 360° ; phase shift = 90° b. amplitude = 7; period = 180° ; phase shift = 90°



- c. amplitude = 1; period = 360° ; phase shift = 90° d. amplitude = 7; period = 90° ; phase shift = 360°

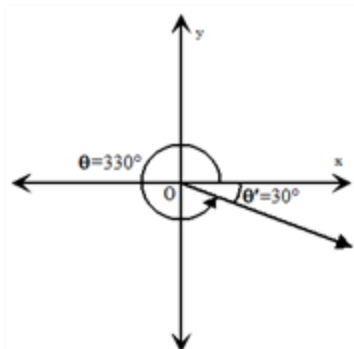


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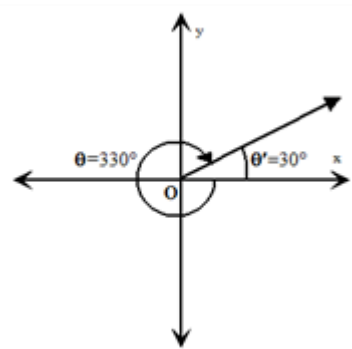
Sketch mentioned angle. Then find its reference angle.

41. 330°

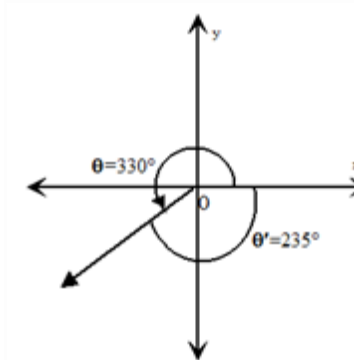
a. 30°



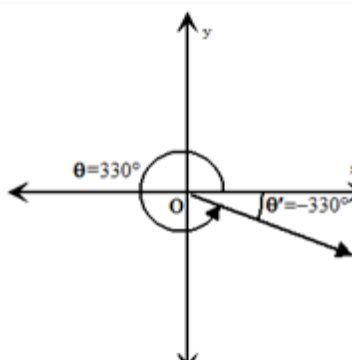
b. 30°



c. 235°



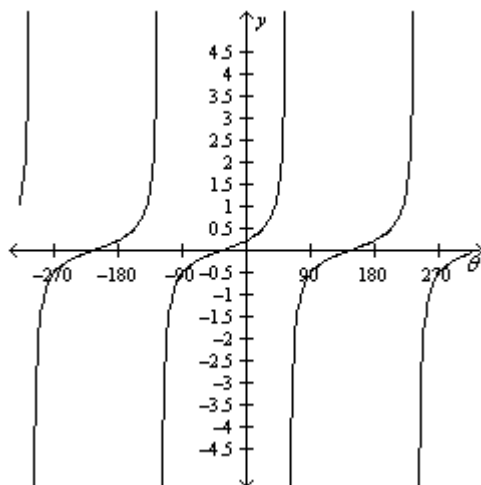
d. -330°



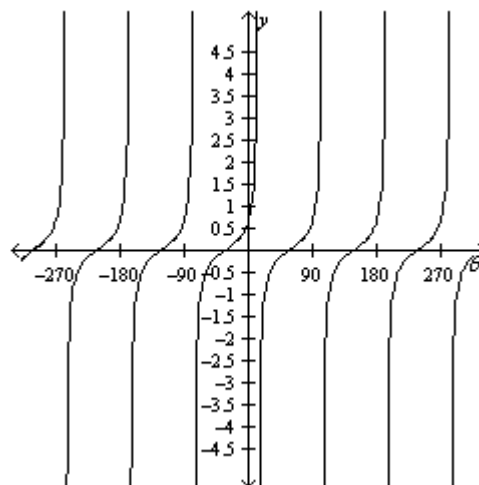
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42. Determine the amplitude, period, and phase shift for $y = \frac{1}{3} \tan(\theta + 30^\circ)$ and use them to plot the graph of the function.

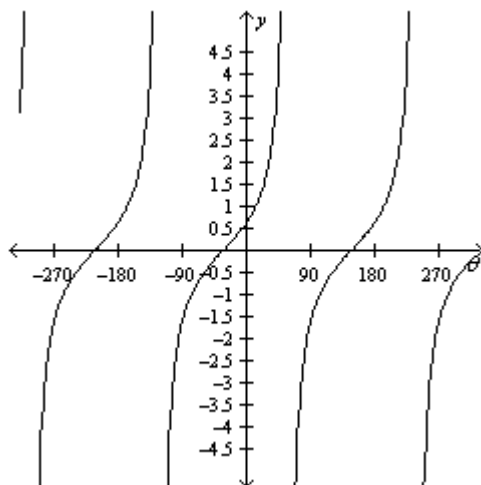
a. amplitude = does not exist; period = 180° ;
phase shift = -30°



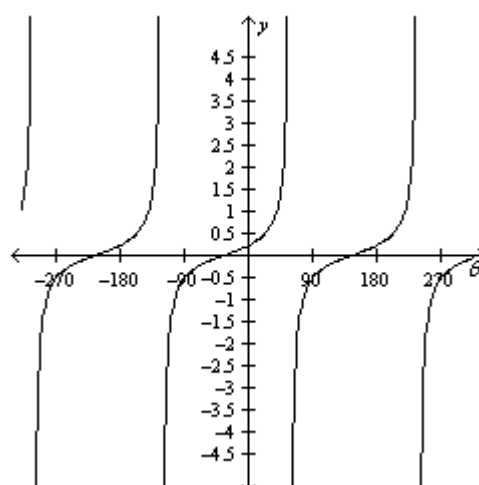
b. amplitude = does not exist; period = 180° ;
phase shift = -30°



c. amplitude = does not exist; period = 180° ;
phase shift = 30°



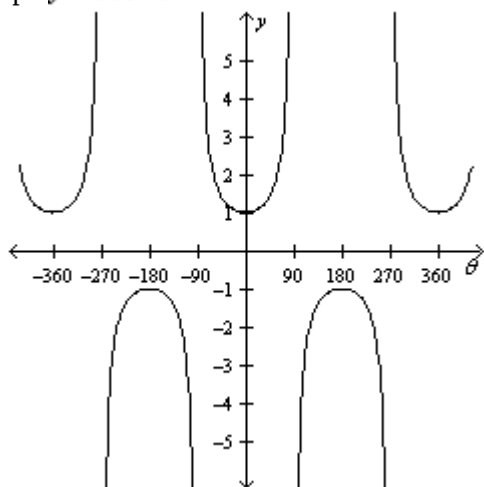
d. amplitude = $\frac{1}{3}$; period = 180° ; phase shift = -30°



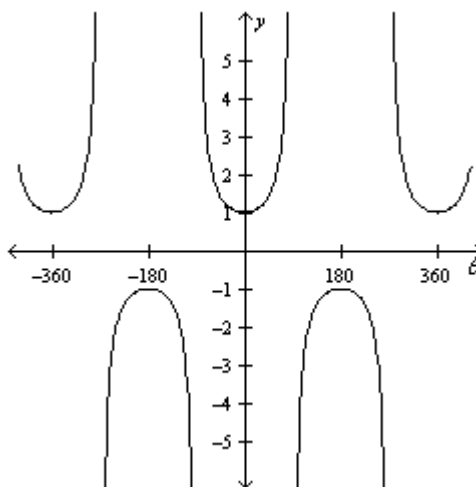
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43. Graph $y = \sec 4\theta$.

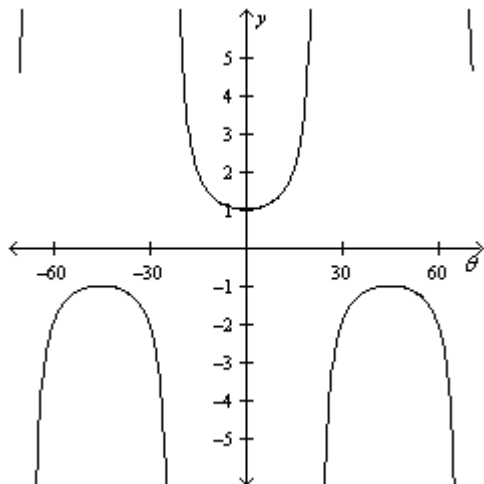
a.



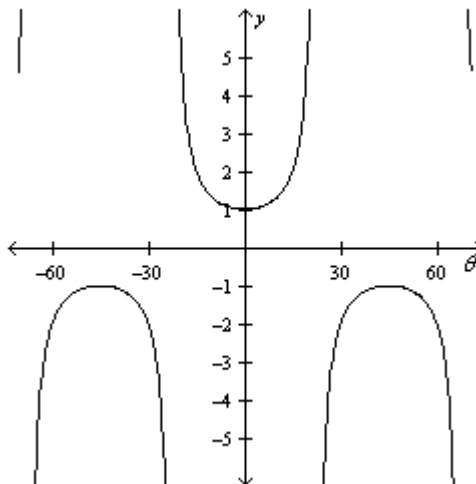
b.



c.



d.



Find the value of each expression using the given information.

44. If $\cos \theta = \frac{1}{4}$ and $0^\circ < \theta < 90^\circ$, find $\tan \theta$.

- a. $\sqrt{15}$
- b. $\sqrt{7}$
- c. $\sqrt{17}$
- d. 15

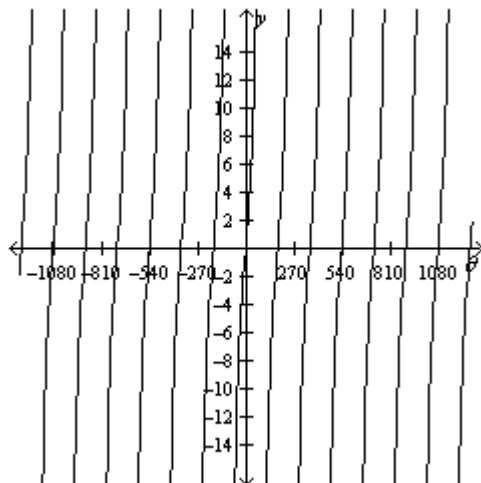
45. Find one positive and one negative angle coterminal with an angle of 166° .

- a. $526^\circ, -194^\circ$
- b. $516^\circ, -14^\circ$
- c. $526^\circ, -76^\circ$
- d. $256^\circ, -76^\circ$

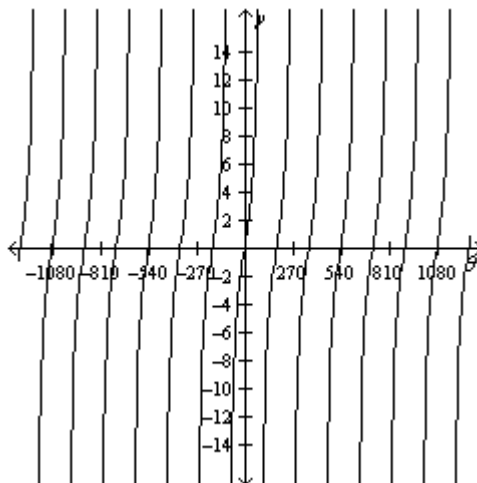
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46. Graph $y = 10 \tan \frac{1}{2} \theta$.

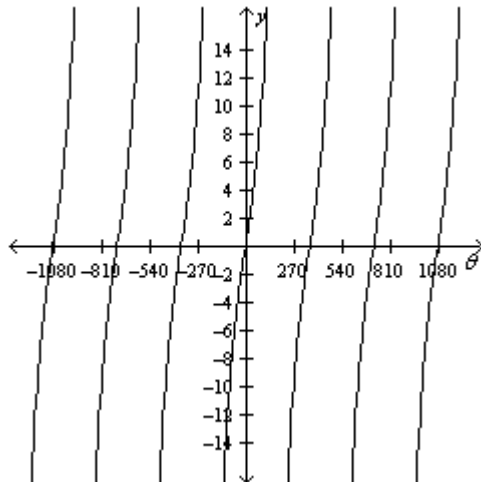
a.



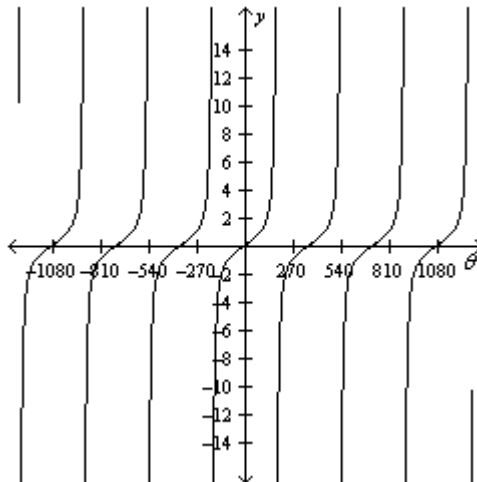
b.



c.



d.



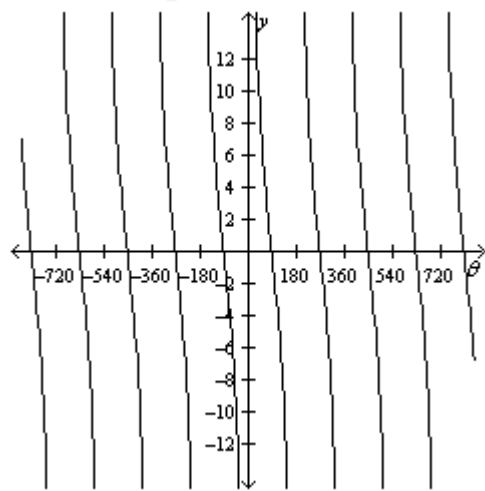
47. Find the area of the triangle with $a = 3$ feet, $b = 4$ feet, and $c = 6$ feet. Round to the nearest tenth.

- a. 50 ft^2 b. 53 ft^2
c. 55 ft^2 d. 54 ft^2

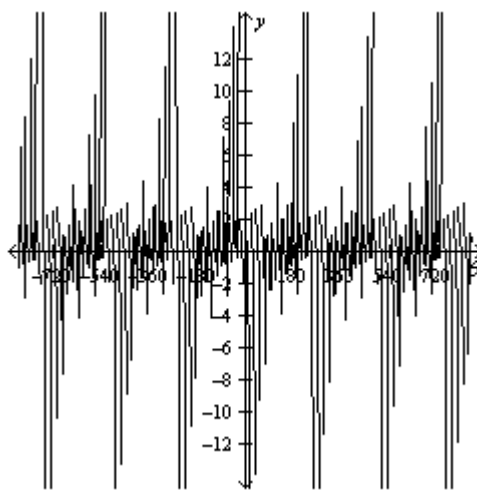
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48. Graph $y = 9 \cot \frac{1}{2} \theta$.

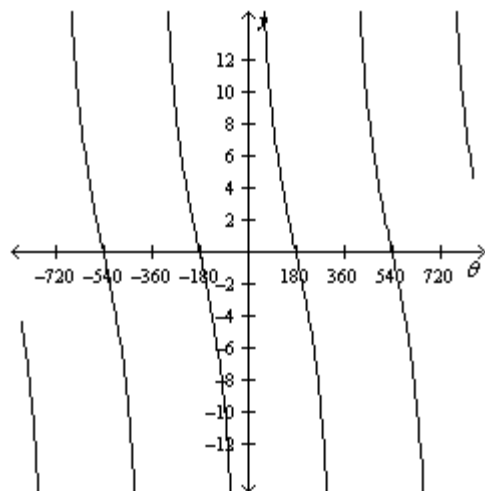
a.



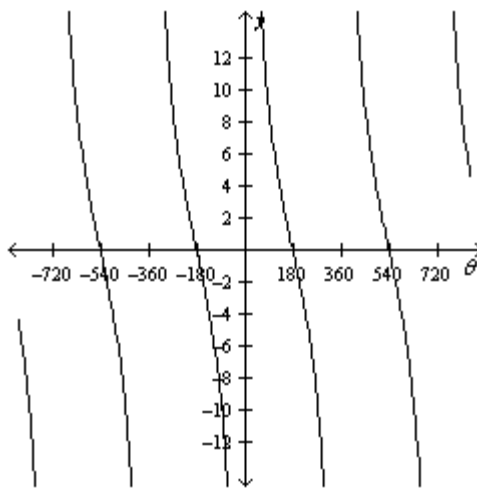
b.



c.



d.

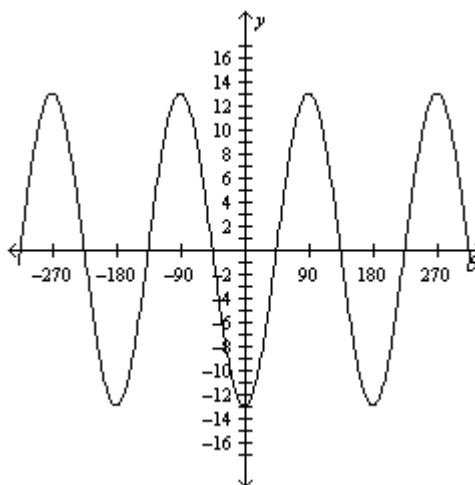
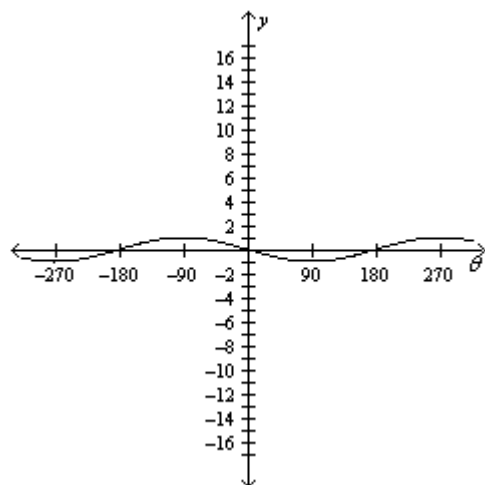


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49. Determine the amplitude, period, and phase shift for $y = 13 \cos(\theta - 90^\circ)$ and use them to plot the graph of the function.

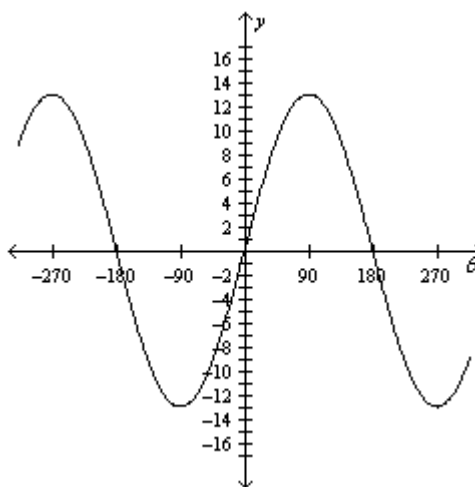
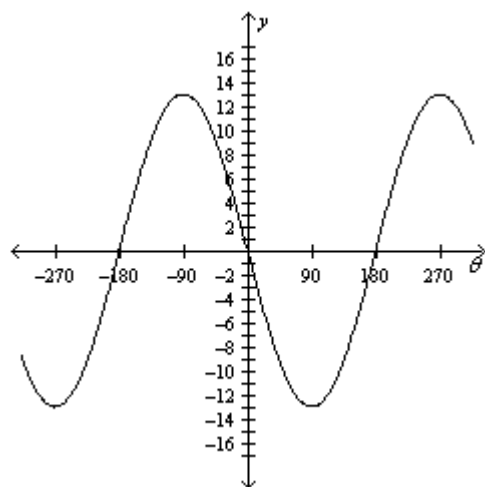
a. amplitude = 1; period = 360° ; phase shift = 90°

b. amplitude = 13; period = 180° ; phase shift = 90°



c. amplitude = 13; period = 90° ; phase shift = 360°

d. amplitude = 13; period = 360° ; phase shift = 90°



50. Find the least positive angle measurement that is coterminal with -100° .

a. 170° b. 440°

c. 620° d. 260°

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Name: _____ Class: _____ Date: _____

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Answer Key

1. a
2. d
3. b
4. a
5. a
6. c
7. b
8. c
9. a
10. b
11. b
12. c
13. c
14. c
15. b
16. b
17. b
18. d
19. b
20. c
21. c
22. c
23. b
24. c
25. c

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26. a

27. a

28. d

29. b

30. b

31. c

32. b

33. a

34. c

35. d

36. b

37. b

38. b

39. c

40. a

41. a

42. a

43. d

44. a

45. a

46. c

47. b

48. c

49. d

50. d