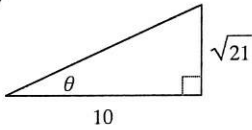


Chapter 11A Review

Find the value of the trig function indicated.

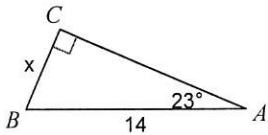
1) $\cos \theta$



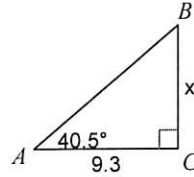
2) Find $\cot \theta$ if $\sin \theta = \frac{2\sqrt{5}}{5}$

Find the measure of each side indicated. Round to the nearest tenth.

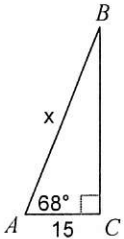
3)



4)

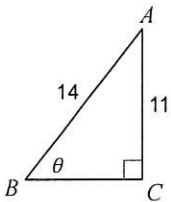


5)

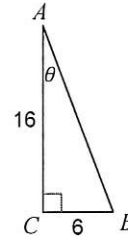


Find the measure of each angle indicated. Round to the nearest degree.

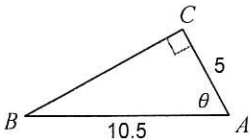
6)



7)

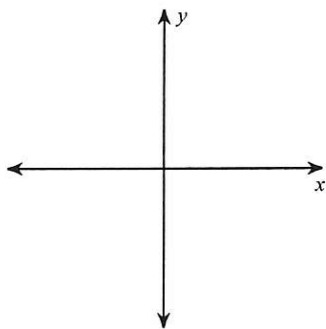


8)

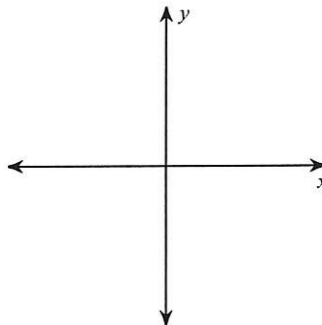


Draw an angle with the given measure in standard position.

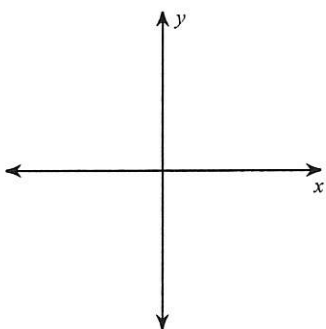
9) $-\frac{7\pi}{4}$



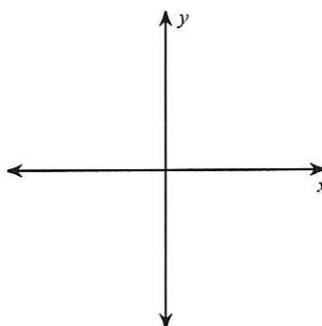
10) 500°



11) -290°

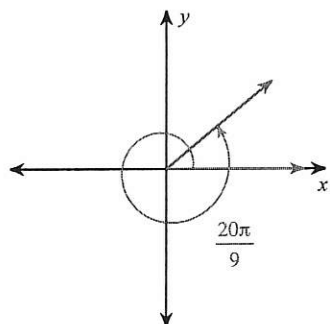


12) $\frac{11\pi}{4}$

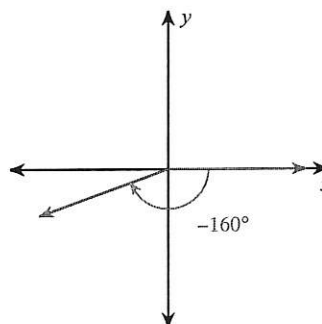


Find the reference angle.

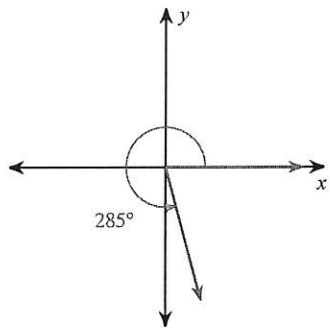
13)



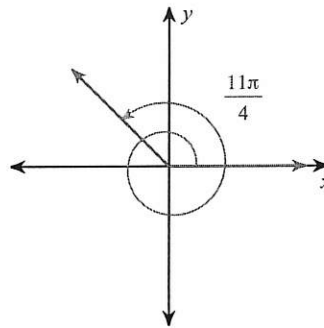
14)



15)



16)



Convert each radian measure into degrees.

17) $\frac{13\pi}{9}$

18) $-\frac{7\pi}{6}$

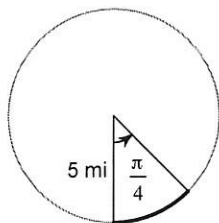
Convert each degree measure into radians.

19) -300°

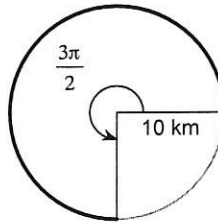
20) -85°

Find the length of each arc.

21)

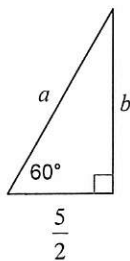


22)

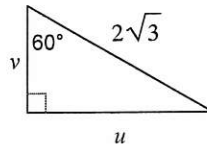


Use the Special Triangles to find the missing side lengths. Leave your answers as radicals in simplest form.

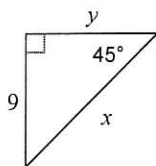
23)



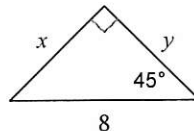
24)



25)

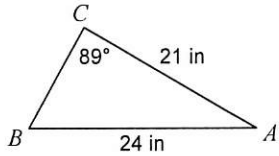


26)

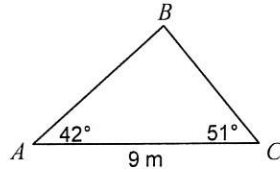


Solve each triangle. Round your answers to the nearest tenth.

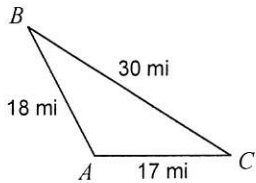
27)



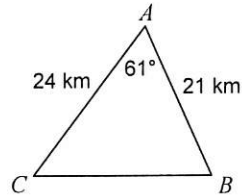
28)



29)



30)



- 31) A triangular playground has side lengths of 475 feet, 595 feet and 401 feet. What are the measures of the angles between the sides, to the nearest degree?

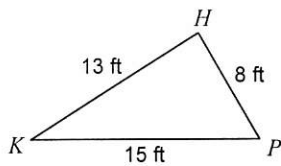
Find the area of each triangle to the nearest tenth.

$$s = \frac{1}{2}(a + b + c)$$

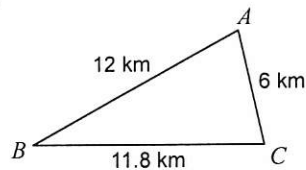
$$A = \frac{1}{2}bc \sin A$$

$$A = \sqrt{s(s-a)(s-b)(s-c)}$$

32)



33)



- 34) If you are standing 54 feet away from a tree and the angle of elevation to the top of the tree is 50°, how tall is the tree? (Your eyes are 5 feet from the ground)

- 35) The angle of depression from the top of a building to the top of a tree is 25°. If the building is 78 meters from the tree and 50 meters high, how tall is the tree?

36) The temperature T in degrees Fahrenheit of a city t months into the year is approximated by the

$$\text{formula } T = 42 + 30\sin \frac{\pi}{6} \cdot t$$

- What is the highest monthly temperature for the city?
- In what month does the highest temperature occur?
- What is the lowest monthly temperature for the city?
- In what month does the lowest temperature occur?

Find the exact value of each trigonometric function.

37) $\sin -210^\circ$

38) $\sin -780^\circ$

39) $\cos -135^\circ$

40) $\tan 135^\circ$

41) $\tan -\frac{\pi}{3}$

42) $\cos \frac{11\pi}{4}$

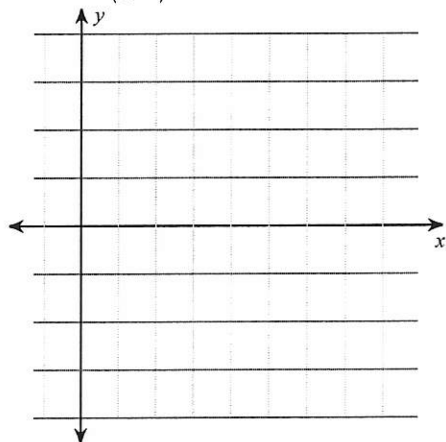
43) $\sin -\frac{7\pi}{4}$

44) $\tan \frac{11\pi}{2}$

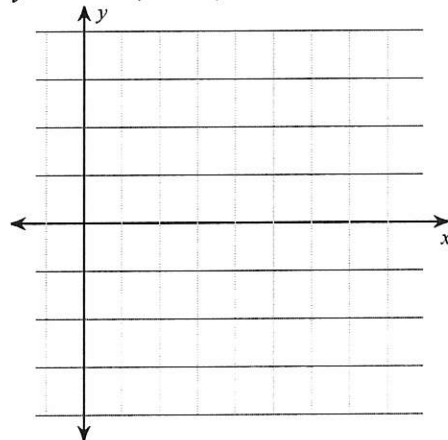
Graph the functions using radians. Label your x and y-axis.

Identify the period, amplitude, phase shift, vertical shift, domain and range:

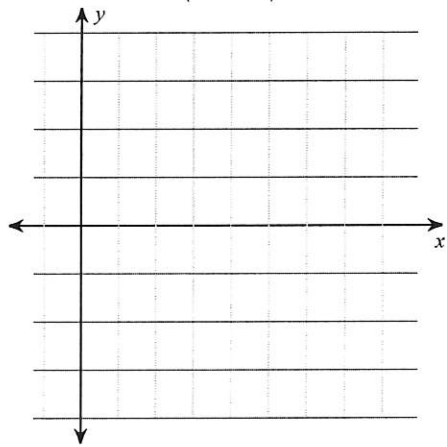
45) $y = \sin \left(\frac{1}{2}\theta \right) + 1$



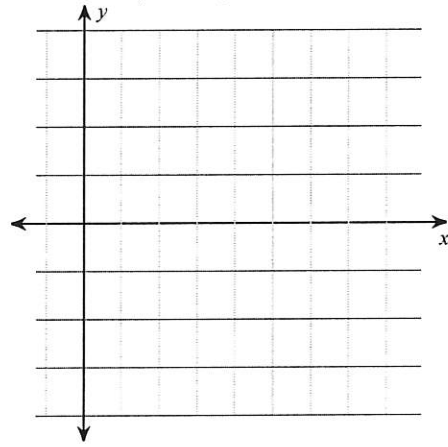
46) $y = -\cos (\theta - \pi) + 2$



$$47) y = -4\sin 2 \cdot \left(\theta - \frac{\pi}{4} \right) + 2$$

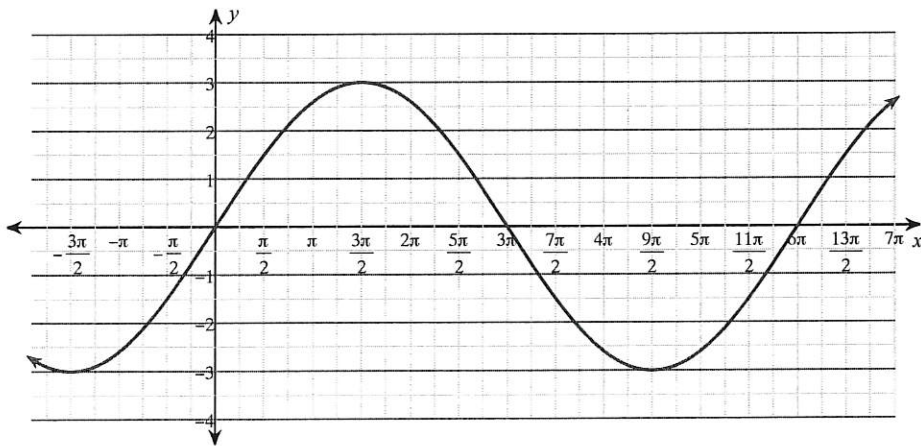


$$48) y = 3\cos \left(\theta + \frac{\pi}{3} \right)$$

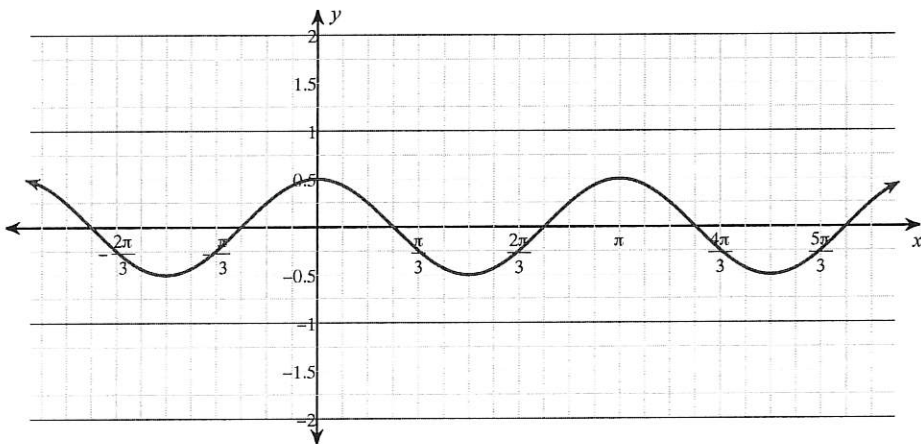


Write the equation of the graph each function using radians.
(There are no phase shifts or vertical shifts).

49) _____



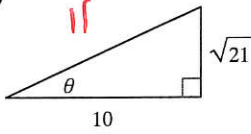
50) _____



Chapter 11A Review

Find the value of the trig function indicated.

1) $\cos \theta$

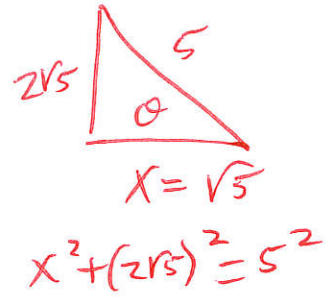


$$10^2 + (\sqrt{21})^2 = 11^2$$

$$\cos \theta = \frac{10}{11}$$

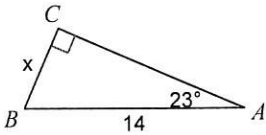
2) Find $\cot \theta$ if $\sin \theta = \frac{2\sqrt{5}}{5}$

$$\cot \theta = \frac{1}{2}$$



Find the measure of each side indicated. Round to the nearest tenth.

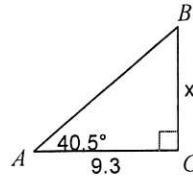
3)



$$\sin 23 = \frac{x}{14}$$

$$x = 5.5$$

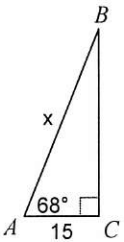
4)



$$\tan 40.5 = \frac{x}{9.3}$$

$$x = 7.9$$

5)

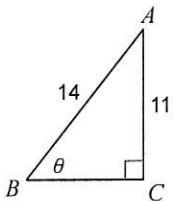


$$\cos 68 = \frac{15}{x}$$

$$x \approx 40$$

Find the measure of each angle indicated. Round to the nearest degree.

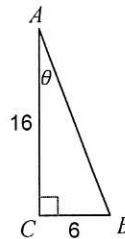
6)



$$\sin \theta = \frac{11}{14}$$

$$\theta = 52^\circ$$

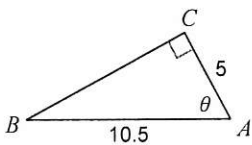
7)



$$\tan \theta = \frac{6}{16}$$

$$\theta = 21^\circ$$

8)

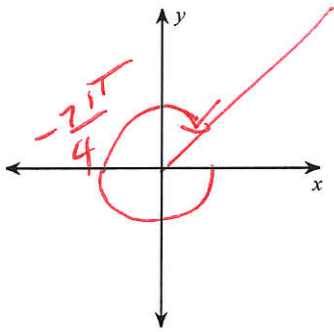


$$\cos \theta = \frac{5}{10.5}$$

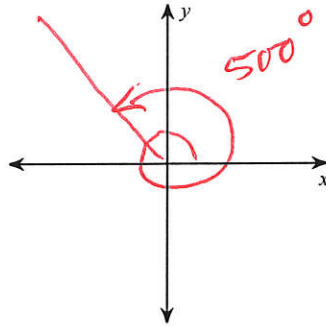
$$\theta = 62^\circ$$

Draw an angle with the given measure in standard position.

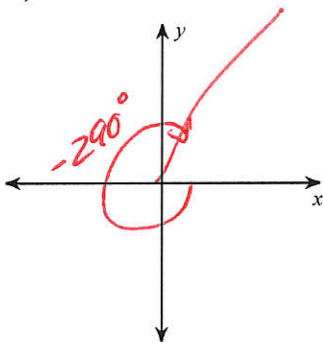
9) $-\frac{7\pi}{4}$



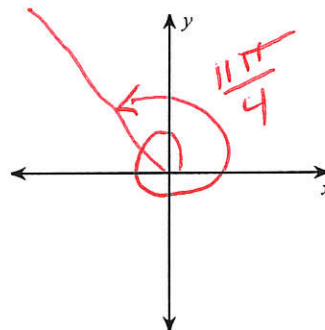
10) 500°



11) -290°

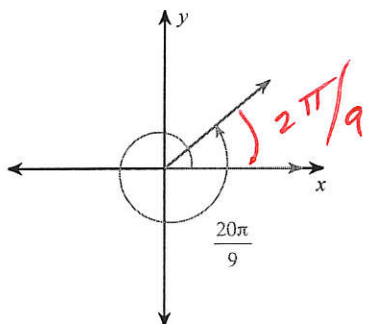


12) $\frac{11\pi}{4}$

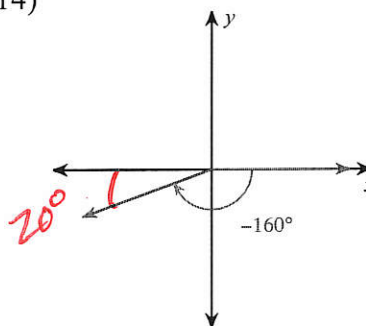


Find the reference angle.

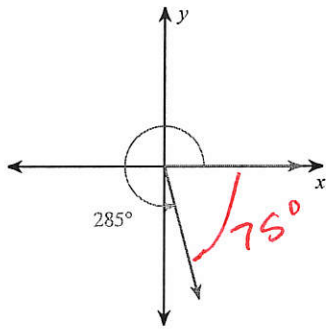
13)



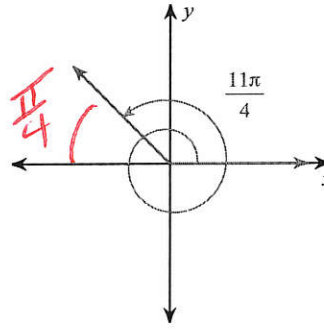
14)



15)



16)



Convert each radian measure into degrees.

17) $\frac{13\pi}{9}$

260°

18) $-\frac{7\pi}{6}$

-210°

Convert each degree measure into radians.

19) -300°

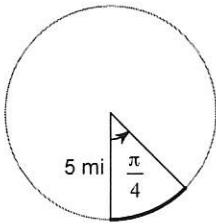
$-\frac{5\pi}{3}$

20) -85°

$-\frac{17\pi}{36}$

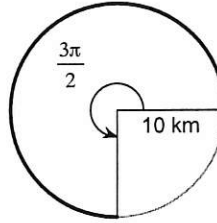
Find the length of each arc.

21)



$\frac{5\pi}{4} \text{ mi}$

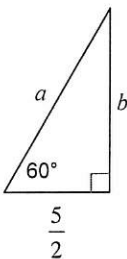
22)



$15\pi \text{ km}$

Use the Special Triangles to find the missing side lengths. Leave your answers as radicals in simplest form.

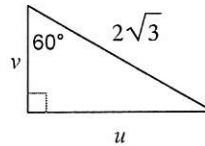
23)



$$a = 5$$

$$b = \frac{5\sqrt{3}}{2}$$

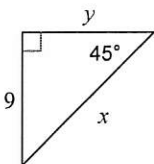
24)



$$u = 3$$

$$v = \sqrt{3}$$

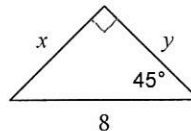
25)



$$x = 9\sqrt{2}$$

$$y = 9$$

26)

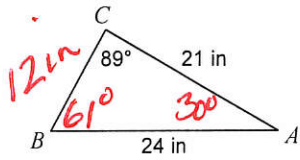


$$x = 4\sqrt{2}$$

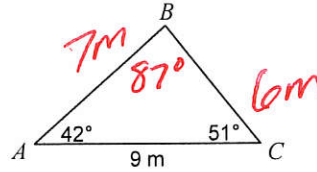
$$y = 4\sqrt{2}$$

Solve each triangle. Round your answers to the nearest tenth.

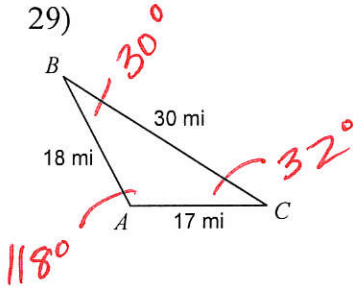
27)



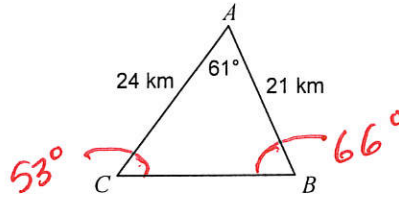
28)



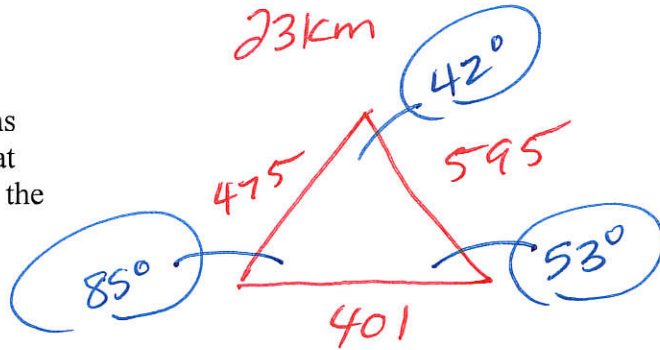
29)



30)



- 31) A triangular playground has side lengths of 475 feet, 595 feet and 401 feet. What are the measures of the angles between the sides, to the nearest degree?



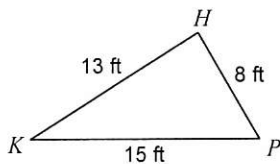
Find the area of each triangle to the nearest tenth.

$$s = \frac{1}{2}(a + b + c)$$

$$A = \frac{1}{2}bc \sin A$$

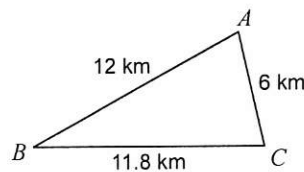
$$A = \sqrt{s(s-a)(s-b)(s-c)}$$

32)



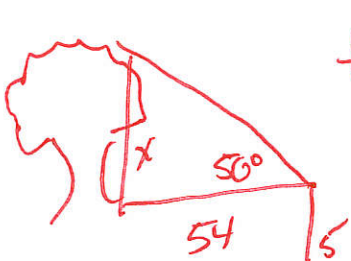
$$52 \text{ ft}^2$$

33)



$$34.5 \text{ km}^2$$

- 34) If you are standing 54 feet away from a tree and the angle of elevation to the top of the tree is 50° , how tall is the tree? (Your eyes are 5 feet from the ground)

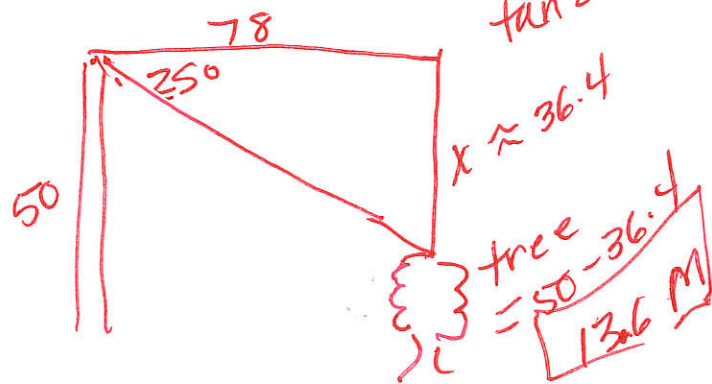


$$\tan 50 = \frac{x}{50}$$

$$x = 64.4$$

$$h = 69.4 \text{ ft}$$

- 35) The angle of depression from the top of a building to the top of a tree is 25° . If the building is 78 meters from the tree and 50 meters high, how tall is the tree?



$$\tan 25 = \frac{78}{x}$$

$$x \approx 36.4$$

$$\text{tree} = 50 - 36.4 = 13.6 \text{ m}$$

36) The temperature T in degrees Fahrenheit of a city t months into the year is approximated by the formula $T = 42 + 30\sin\frac{\pi}{6} \cdot t$

$a = 30$ moves up 42

a. What is the highest monthly temperature for the city?

$30 + 42 = 72^\circ$

b. In what month does the highest temperature occur?

max is first key point so $\frac{12 \text{ months}}{4} = 3 \text{ months}$ March

c. What is the lowest monthly temperature for the city?

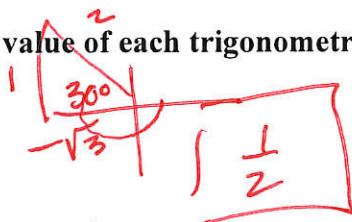
$30 - 42 = -12^\circ$

d. In what month does the lowest temperature occur?

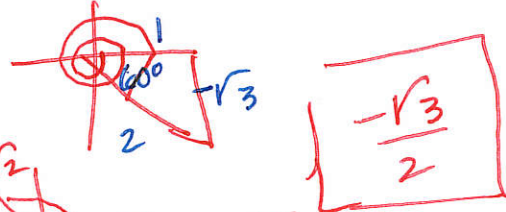
min is third key point
9 months / September

Find the exact value of each trigonometric function.

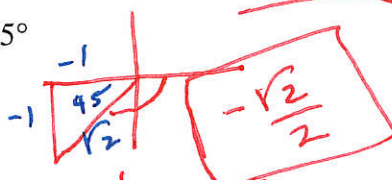
37) $\sin -210^\circ$



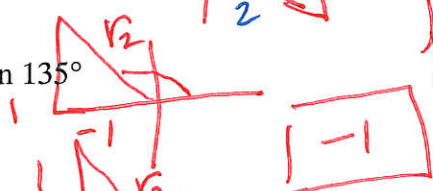
38) $\sin -780^\circ$



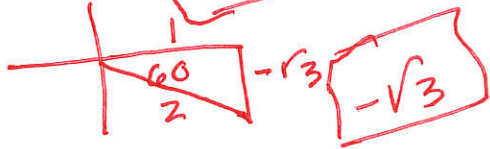
39) $\cos -135^\circ$



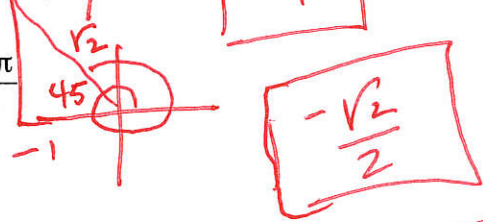
40) $\tan 135^\circ$



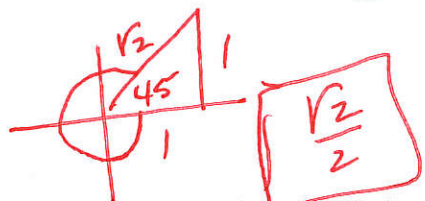
41) $\tan -\frac{\pi}{3}$



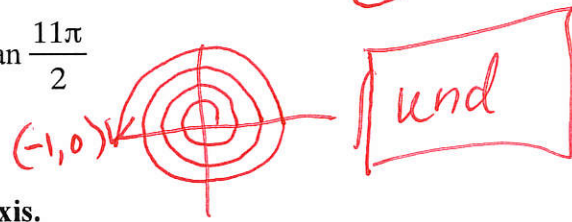
42) $\cos \frac{11\pi}{4}$



43) $\sin -\frac{7\pi}{4}$



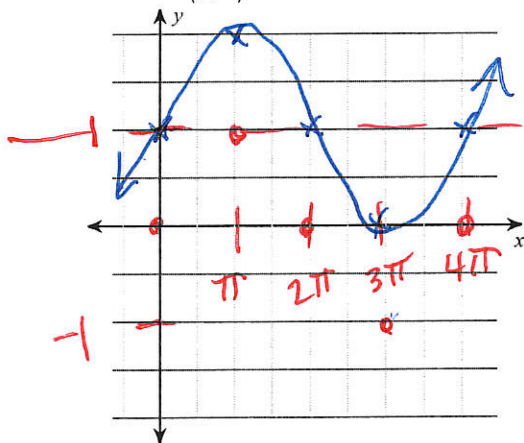
44) $\tan \frac{11\pi}{2}$



Graph the functions using radians. Label your x and y-axis.

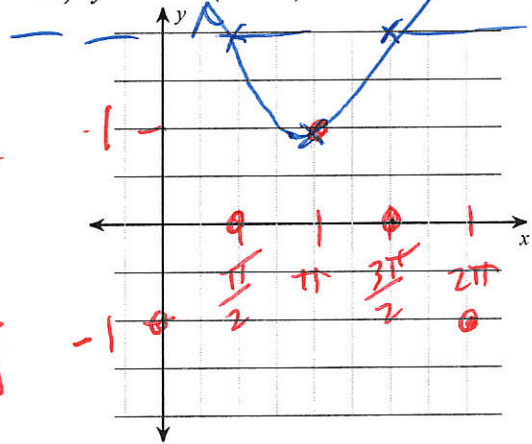
Identify the period, amplitude, phase shift, vertical shift, domain and range:

45) $y = \sin\left(\frac{1}{2}\theta\right) + 1$



$a = 1$
 $p = 4\pi$
P.S. none
V.S. up 1
D: \mathbb{R}
R: $[0, 2]$

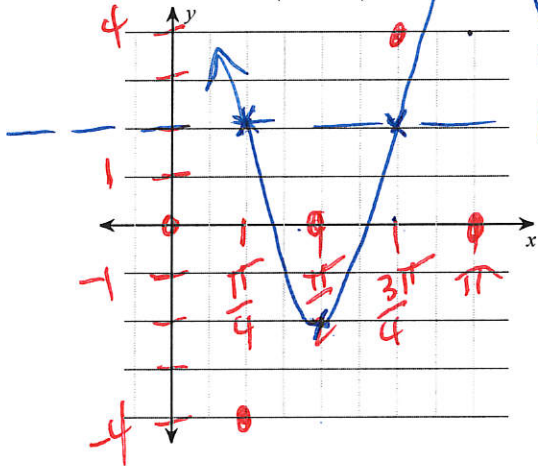
46) $y = -\cos(\theta - \pi) + 2$



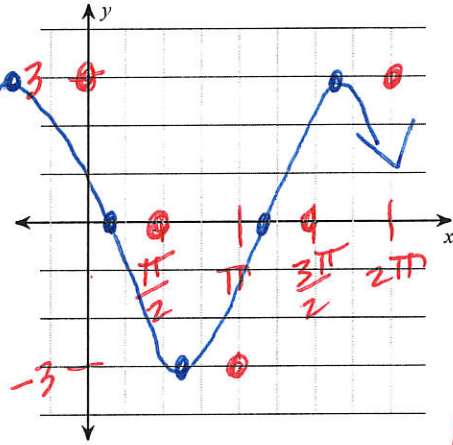
reflection on x-axis
 $a = 1$
 $p = 2\pi$
P.S. π right
V.S. up 2
D: \mathbb{R}
R: $[1, 3]$

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

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



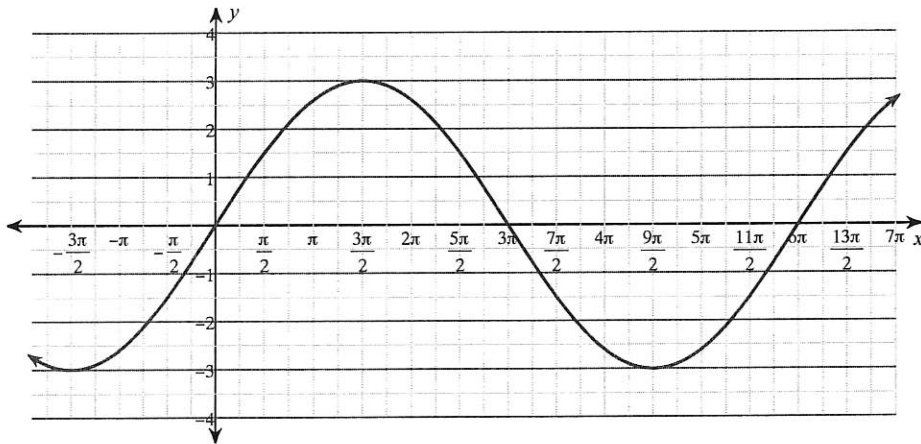
reflect on x-axis
 $a: 4$
 $p: \pi$
 p.s. $\frac{\pi}{4}$ right
 v.s. up 2
 $D: \mathbb{R}$
 $R: [-2, 6]$



$a: 3$
 $p: 2\pi$
 p.s. $\frac{\pi}{3}$ left
 v.s. none
 $D: \mathbb{R}$
 $R: [-3, 3]$

Write the equation of the graph each function using radians.
 (There are no phase shifts or vertical shifts).

49) $y = 3\sin \frac{1}{3}\theta$



50) $y = \frac{1}{2}\cos 2\theta$

