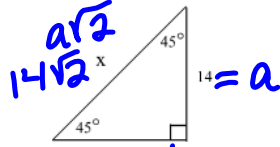


Student: _____ Instructor: Dawn Nolan Assignment: Review 13.1 - 13.5
 Date: _____ Course: P4 Geometry Honors

1. What is the value of x?

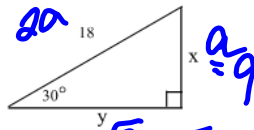


x = $14\sqrt{2}$

a = 14

(Simplify your answer. Type an exact answer, using radicals as needed.)

2. Find the value of each variable.



2a = 18

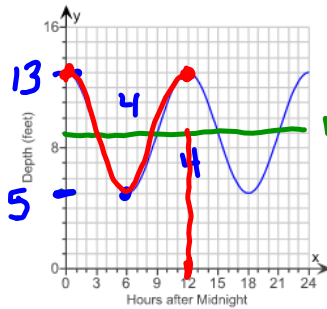
a = 9

a\sqrt{3} = 9\sqrt{3}

x = 9 and y = $9\sqrt{3}$

(Simplify your answers. Type exact answers, using radicals as needed.)

*3. The graph shows the depth of water at the end of a boat dock.



a. The amplitude is 4.

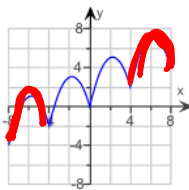
b. The period is 12 hours.

$$\frac{13 - 5}{2} = \frac{8}{2} = 4$$

$$a = \frac{\text{max} - \text{min}}{2}$$

- a. Find the amplitude of the graph.
- b. Find the period of the function.

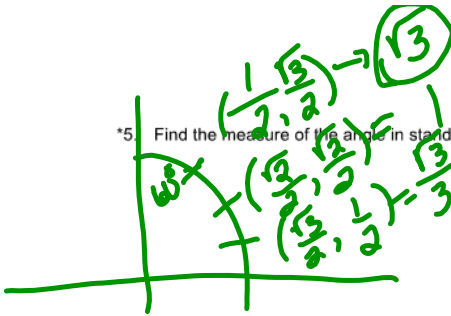
*4. Determine whether the function is or is not periodic. If it is, find the period.



Select the correct choice below and fill in any answer boxes within your choice.

- A. The function is periodic. The period is _____.
- B. The function is not periodic.

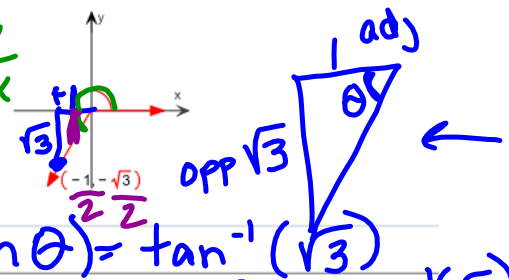
*5. Find the measure of the angle in standard position.



$$\frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}} = \frac{y}{x}$$

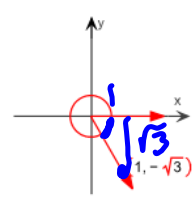
$$\tan \theta = \frac{\sqrt{3}}{1}$$



The measure of the angle is 240°. $\tan^{-1}(\tan \theta) = \tan^{-1}(\sqrt{3})$

*6. Find the measure of the angle in standard position.

$$\begin{array}{r} 360 \\ -60 \\ \hline 240 \end{array}$$



$$\theta = \tan^{-1}(\sqrt{3})$$

$$\theta = 60^\circ$$

$$\begin{array}{r} +180 \\ \hline 240 \end{array}$$

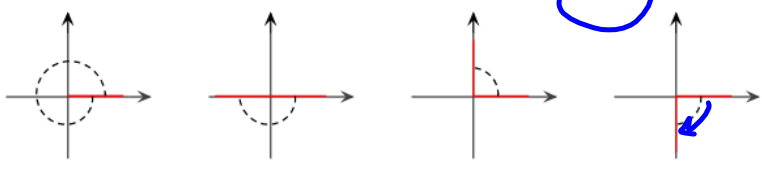
The measure of the angle is 240°.

*7. Sketch the angle in standard position.

-90°

Choose the correct answer below.

- A. B. C. D.



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

-420°

An angle between 0° and 360° that is coterminal with the given angle is 300°.

$$\begin{array}{r} -420 \\ +360 \\ \hline -60 \\ +360 \\ \hline 300 \end{array}$$

*9. Find the exact values of the cosine and sine of the angle. Then find the decimal values.

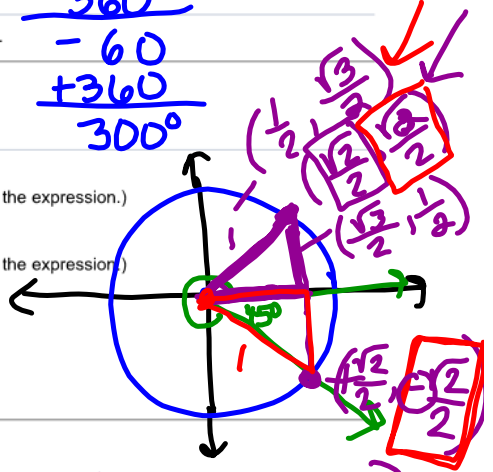
$\theta = 315^\circ$ $\frac{\sqrt{2}}{2}$ ✓

$\cos 315^\circ = \frac{\sqrt{2}}{2}$
(Simplify your answer, including any radicals. Use integers or fractions for any numbers in the expression.)

$\sin 315^\circ = \frac{-\sqrt{2}}{2}$
(Simplify your answer, including any radicals. Use integers or fractions for any numbers in the expression.)

$\cos 315^\circ = 0.71$
(Round to the nearest hundredth as needed.)

$\sin 315^\circ = -0.71$
(Round to the nearest hundredth as needed.)



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

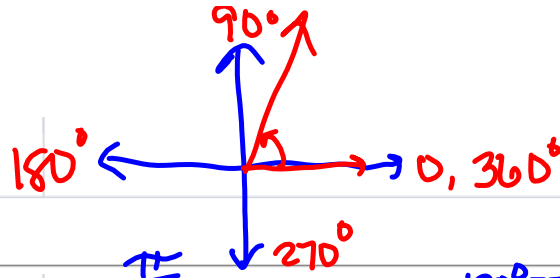
$$a = \frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

(cos θ, sin θ)

*10. For the angle, state in which quadrant the terminal side lies.

55°

The angle is in Quadrant I.
(Type your answer as I, II, III, or IV.)



*11. Convert the following degree measure to radian measure.

90°

$$90^\circ \cdot \frac{\pi \text{ rad}}{180^\circ} = \frac{\pi}{2}$$

90° = $\frac{\pi}{2}$ radians

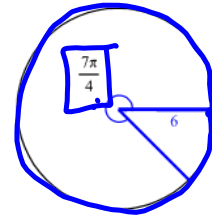
(Simplify your answer. Type an integer or a fraction.)

$$180^\circ = \pi \text{ rad}$$

$$\frac{\pi}{180^\circ} \cdot 180^\circ$$

*12. Find the exact length of the arc intercepted by the given central angle in the figure to the right.

$$s = \theta \cdot r = \frac{7\pi}{4} \cdot 6 = \frac{21\pi}{4}$$



$$C \rightarrow 2\pi r$$

$$\frac{2\pi \cdot 6}{4} = \frac{7\pi}{4} \cdot 6$$

The length of the intercepted arc is $\frac{21\pi}{4}$.
(Type an exact answer in terms of π. Use integers or fractions for any numbers in the expression.)

*13. Convert to degree measure.

$\frac{\pi}{7}$

$$\frac{\pi}{7} \cdot \frac{180^\circ}{\pi} =$$

$\frac{\pi}{7} = 25.71^\circ$

(Round to two decimal places as needed.)

*14. The measure θ of an angle in standard position is given. Find the exact values of cos θ and sin θ for the angle measure.

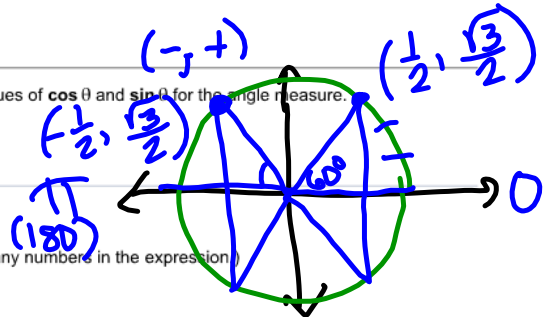
$\frac{2\pi}{3}$ radians

$$\cos\left(\frac{2\pi}{3}\right) = -\frac{1}{2}$$

(Simplify your answer, including any radicals. Use integers or fractions for any numbers in the expression.)

$$\sin\left(\frac{2\pi}{3}\right) = \frac{\sqrt{3}}{2}$$

(Simplify your answer, including any radicals. Use integers or fractions for any numbers in the expression.)

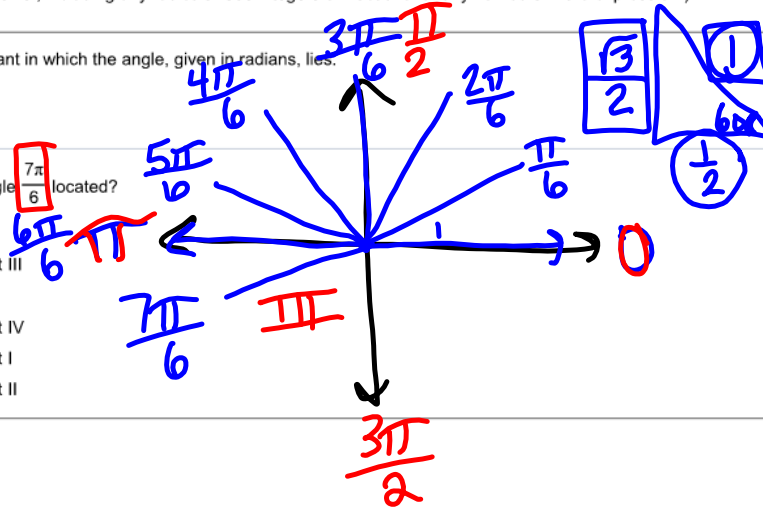


*15. Name the quadrant in which the angle, given in radians, lies.

$\frac{7\pi}{6}$

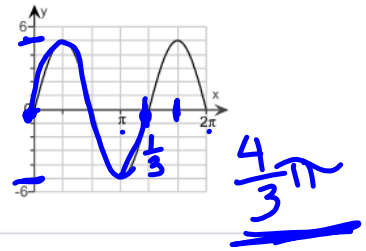
Where is the angle $\frac{7\pi}{6}$ located?

- A. x-axis
- B. Quadrant III
- C. y-axis
- D. Quadrant IV
- E. Quadrant I
- F. Quadrant II



- *16. Determine the number of cycles the sine function shown to the right has in the interval from 0 to 2π . Find the amplitude and the period of the function.

$$P = \frac{2\pi}{b} = \frac{2\pi}{\frac{3}{2}} = 2\pi \cdot \frac{2}{3} = \frac{4\pi}{3}$$



The given sine function has $\frac{3}{2}$ cycle(s).

(Simplify your answer. Type an exact answer, using π as needed. Use integers or fractions for any numbers in the expression.)

For the given sine function, the amplitude is 5 .

(Simplify your answer. Type an exact answer, using π as needed. Use integers or fractions for any numbers in the expression.)

For the given sine function, the period is $\frac{4\pi}{3}$.

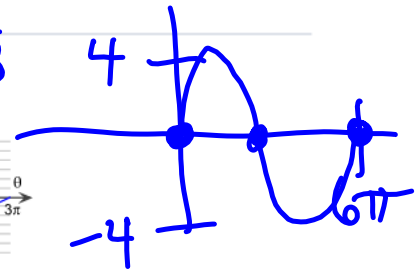
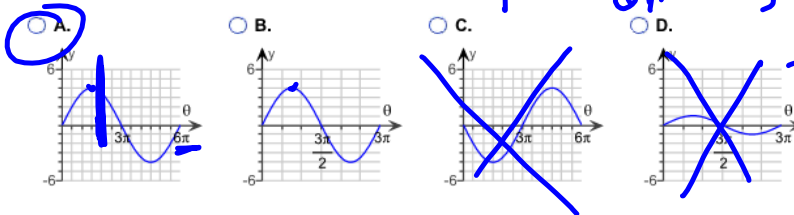
(Simplify your answer. Type an exact answer, using π as needed. Use integers or fractions for any numbers in the expression.)

- *17. Sketch one cycle of the sine curve. Assume $a > 0$. Write an equation for the graph.

amplitude = 4, period = 6π

$$b = \frac{2\pi}{P} = \frac{2\pi}{6\pi} = \frac{1}{3}$$

Choose the correct graph below.



Write an equation for the graph. Choose the correct answer below.

A. $y = \frac{1}{4} \sin \frac{1}{3} \theta$

B. $y = 4 \sin \frac{1}{3} \theta$

C. $y = 4 \sin 3\theta$

D. $y = \frac{1}{4} \sin 3\theta$

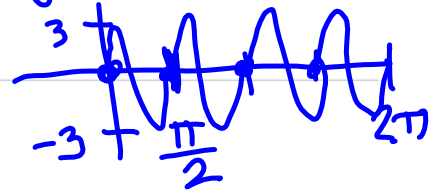
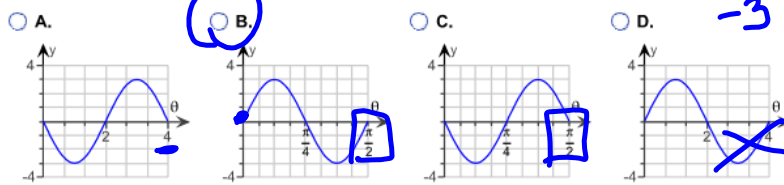
$$y = a \sin b\theta$$

$$y = 4 \sin \frac{1}{3} \theta$$

- *18. Sketch one cycle of the graph of the sine function.

$y = 3 \sin 4\theta$

Choose the correct graph below.



$$a = 3$$

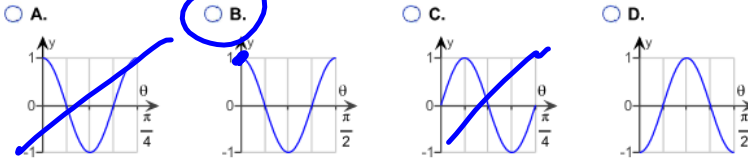
$$b = 4$$

$$P = \frac{2\pi}{4} = \frac{\pi}{2}$$

*19. Graph one period of the cosine function shown below.

$y = \cos 4\theta$

Which graph below shows one period of the function?



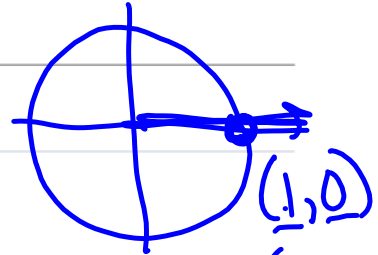
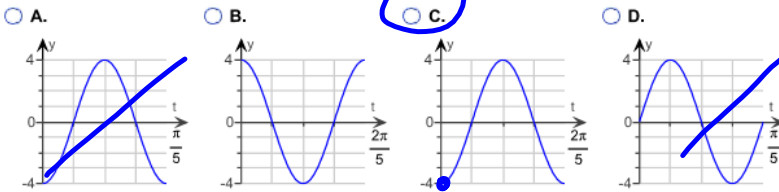
$a = 1$
 $b = 4$

$P = \frac{2\pi}{4}$
 $= \frac{\pi}{2}$

*20. Sketch one cycle of the graph of the cosine function below.

$y = -4 \cos 5t$

Which graph below shows one cycle of the function?



$a = -4$
 $b = 5$

*21. Solve the equation below in the interval from 0 to 2π . Round to the nearest hundredth.

$5 \cos t = -1$

Choose the correct answer below.

- A. $t = 1.77, 4.51$
- B. $t = 1.71, 4.58$
- C. $t = 1.71, 4.51$
- D. $t = 1.77, 4.59$

$\frac{5 \cos t}{5} = \frac{-1}{5}$
 $\cos^{-1} \cos t = \cos^{-1} \frac{-1}{5}$

$P = \frac{2\pi}{5}$

$t = \cos^{-1}(\frac{1}{5})$

*22. Solve the equation below in the interval from 0 to 2π . Round to the nearest hundredth.

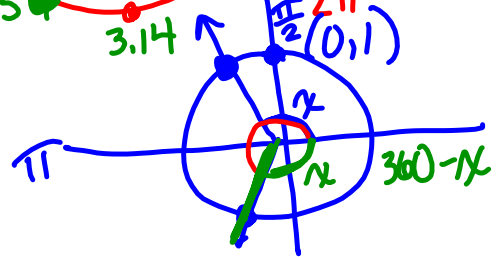
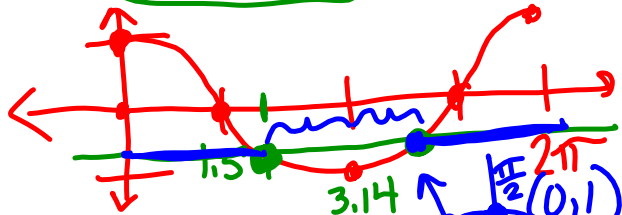
$\sin \pi\theta = 1$

Choose the correct answer below.

- A. $\theta = 0.50, 2.50, 4.50$
- B. $\theta = 1.00, 3.00, 5.00$
- C. $\theta = 0.50, 2.25, 4.50$
- D. $\theta = 0.00, 2.00, 4.00$

$2\pi - 1.77$

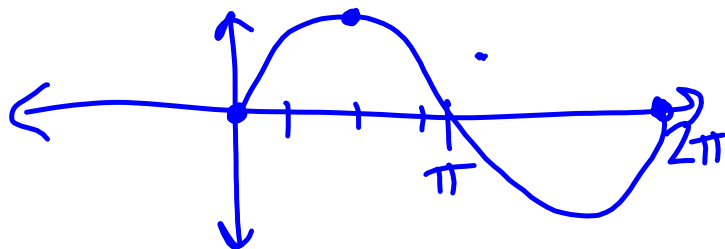
$t = 1.77$



$\sin \pi\theta = 1$
 $\sin^{-1}(\sin \pi\theta) = \sin^{-1} 1$
 $\pi\theta = \sin^{-1} 1$
 $\theta = \frac{1}{\pi}$

$\frac{2\pi}{\pi} = 2$

$\theta = 2$



1. $14\sqrt{2}$

2. 9

$9\sqrt{3}$

3. 4

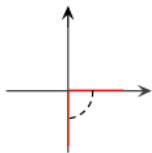
12

4. B. The function is not periodic.

5. 240

6. 300

7.



D.

8. 300

9. $\frac{\sqrt{2}}{2}$

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

0.71

-0.71

10. 1

11. $\frac{\pi}{2}$

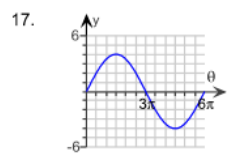
12. $\frac{21\pi}{2}$

13. 25.71

14. $-\frac{1}{2}$
 $\frac{\sqrt{3}}{2}$

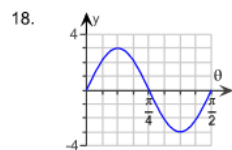
15. B. Quadrant III

16. $\frac{3}{2}$
 5
 $\frac{4}{3}\pi$

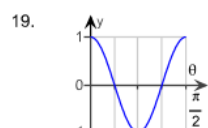


A.

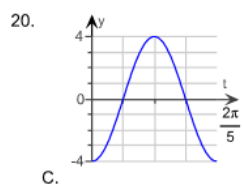
B. $y = 4 \sin \frac{1}{3}\theta$



B.



B.



C.

21. A. $t = 1.77, 4.51$

22. A. $\theta = 0.50, 2.50, 4.50$
