

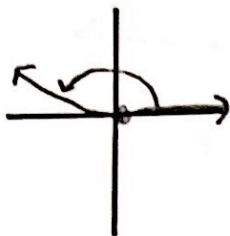
Unit 8 Review - Trigonometry

NAME Key

Angles in Degrees

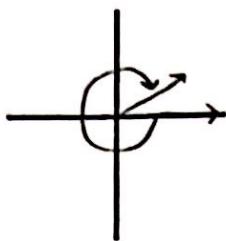
Sketch each angle in standard position. State the quadrant in which it terminates.

1. 150°



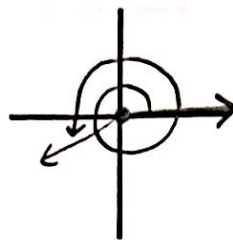
Quadrant: II

2. -340°



Quadrant: I

3. 560°



Quadrant: III

Find the coterminal angle between 0° and 360° .

4. 750° 30°

5. -270° 90°

6. 405° 45°

Angles in Radians

Convert each angle into radians.

7. 230° $\frac{23\pi}{36}$

8. -400° $-\frac{10\pi}{9}$

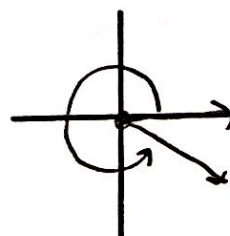
Convert each angle into degrees.

9. $\frac{8\pi}{3}$ 480°

10. $-\frac{\pi}{4}$ -45°

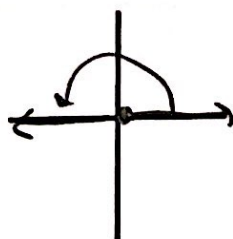
Sketch each angle in standard position. State the quadrant in which it terminates.

11. $\frac{11\pi}{6}$



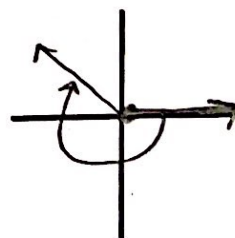
Quadrant: IV

12. π



Quadrant: II/III
border

13. $-\frac{5\pi}{4}$



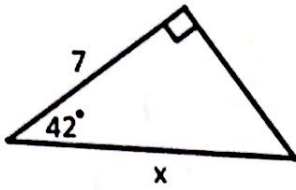
Quadrant: II

Right Triangle Trig

*Make sure you're in DEGREE MODE!

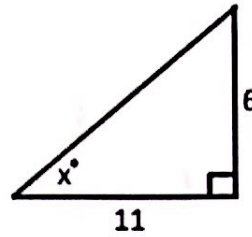
Find the value of x using trigonometric ratios.

14.



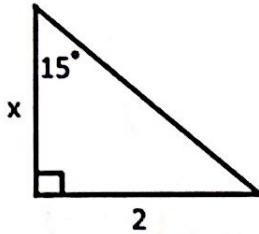
$$x = 9.42$$

15.



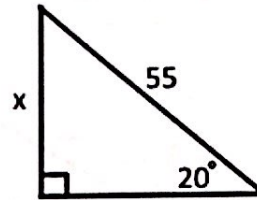
$$x = 28.61^\circ$$

16.



$$x = 7.46$$

17.



$$x = 18.81$$

18. To find the height of the Times Square New Year's Eve Ball, a partygoer moves 140 feet away from the base of the pole and estimates the angle of elevation to the NYE Ball to be about 44° . About how high is the ball?

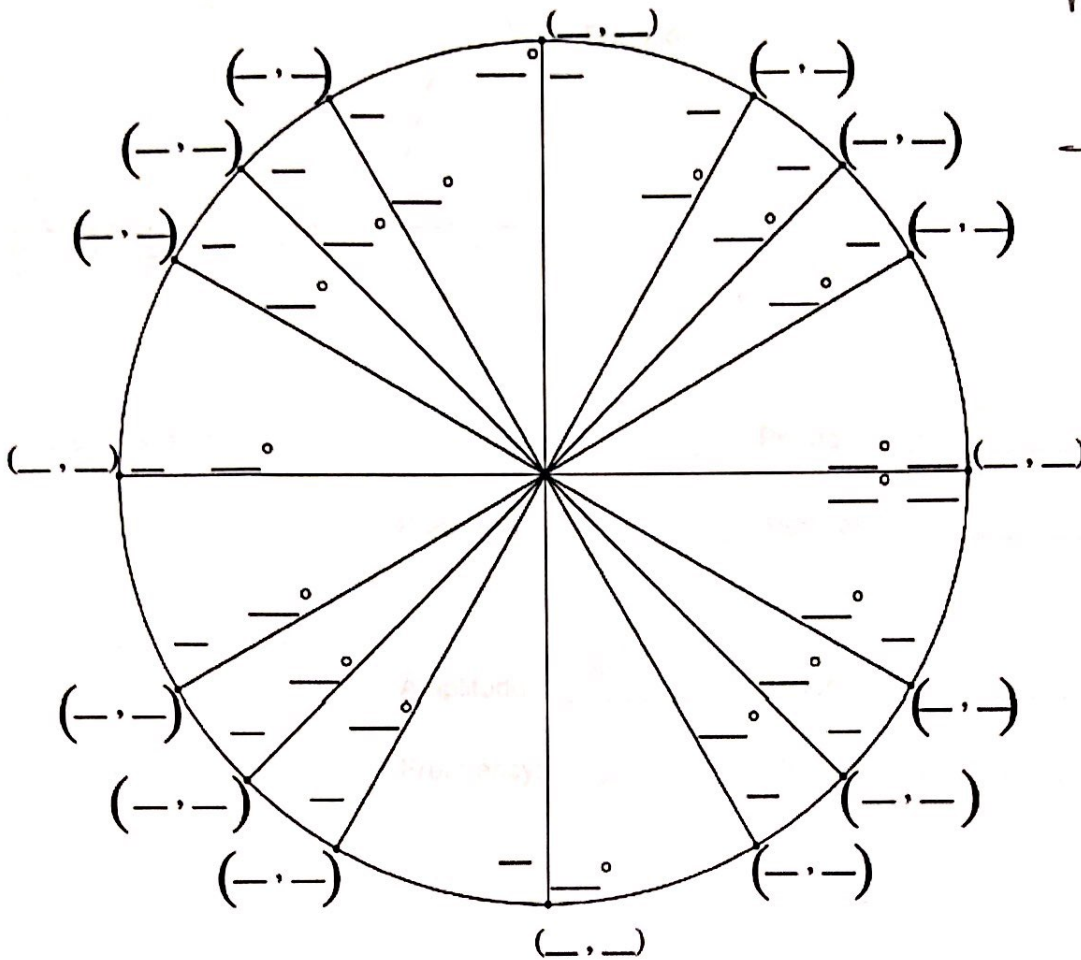
*Draw a picture to help you!

$$135.20 \text{ feet}$$

Exact Values of Trig Functions

Complete the unit circle.

*Check website or online resource for assistance if needed!



Try without looking at your notes!

Determine the exact value of each trig function by using the unit circle.

19. $\sin 180^\circ = 0$

20. $\cos \frac{4\pi}{3} = -\frac{1}{2}$

21. $\cot 60^\circ = \frac{1}{\sqrt{3}}$

22. $\sec -45^\circ = \frac{2}{\sqrt{2}}$

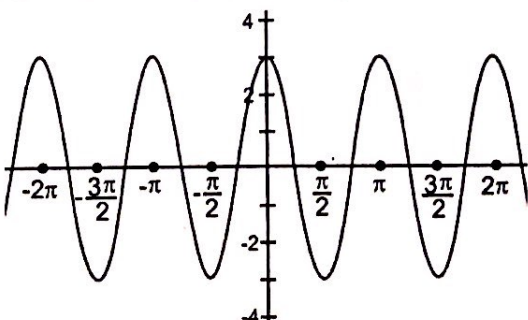
23. $\csc \frac{19\pi}{6} = -2$

24. $\tan \frac{\pi}{2} = \text{undefined}$

Graphs and Equations of Sine and Cosine

For each graph, determine the amplitude, period, frequency, and vertical shift. Then write the equation.

25.

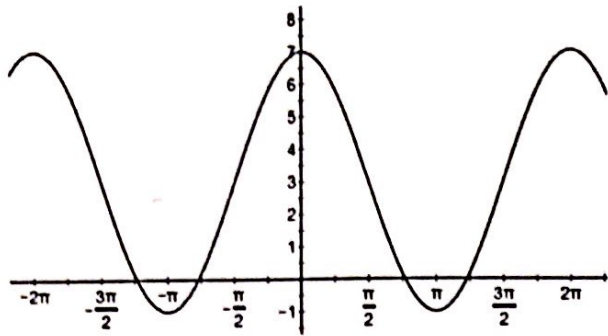


Amplitude: 3 Period: π

Frequency: $\frac{2}{2\pi}$ Vertical Shift: none

Equation: $y = 3 \cos 2\theta$

26.

Amplitude: 4 Period: 2π Frequency: $1/2\pi$ Vertical Shift: Up 3Equation: $y = 4\cos\theta + 3$

27. $y = -2\cos\left(\frac{1}{3}x\right) - 7$

Amplitude: 2 Period: 6π Frequency: $1/6\pi$ Vertical Shift: Down 7

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

Amplitude: 4 Period: $\frac{-\pi}{2}$ Frequency: $-2/\pi$ Vertical Shift: Up 2**Applications of Trig Function**

29. An elk population fluctuates periodically over time. The average population is 300 antelopes. Every 5 years the population reaches a maximum of 350 elk. Write a cosine function to model the elk population over time, where x represents time in years.

$$y = 50\cos\frac{2\pi}{5}x + 300$$

30. Each day, the tide continuously goes in and out, raising and lowering a boat in the harbor. At low tide, the boat is only 2 feet above the ocean floor. And, 6 hours later, at peak high tide, the boat is 40 feet above the ocean floor. Write a sine function that describes the boat's distance above the ocean floor as it relates to time, where x represents time in hours.

$$y = 19\sin\frac{\pi}{3}x$$