

Name: Answer Key

Trigonometry Practice 7.1-7.4

1. Which expression is not equal to zero?  
a.)  $\cos 90^\circ$       b.)  $\sin(-2\pi)$       c.)  $\sin(-270^\circ)$       d.)  $\cos(-\pi/2)$

2. In which quadrant(s) do sine and cosine have the same sign?

Q I and III

3. Which expression is not equal to  $\sin 210^\circ$ ?  
a.)  $\sin(-120^\circ)$       b.)  $\cos(120^\circ)$       c.)  $\sin(-30^\circ)$       d.)  $\cos(240^\circ)$

4. Without using a calculator, state whether each expression is positive, negative or zero.

a.)  $\cos 141^\circ$       b.)  $\sin 1308^\circ$       c.)  $\sin(-6\pi/5)$       d.)  $\cos(13\pi/4)$   
N                      N                      P                      N

5. Express each of the following in terms of its reference angle.

a.)  $\cos 284^\circ$       b.)  $\sin 500^\circ$       c.)  $\sin(-318^\circ)$   
 $-\cos(76^\circ)$        $\sin(40^\circ)$        $\sin(42^\circ)$

6. Give the exact value of each expression in simplest radical form.

a.)  $\cos(-225^\circ)$       b.)  $\sin 210^\circ$       c.)  $\cos(11\pi/6)$   
 $-\frac{\sqrt{2}}{2}$                        $-\frac{1}{2}$                        $\frac{\sqrt{3}}{2}$

7. If  $x$  is a third quadrant angle and  $\cos x = 1/3$ , find  $\sin x$ .

$$\sin x = \frac{-2\sqrt{2}}{3}$$

8. If  $x$  is a second quadrant angle and  $\sin x = (21/29)$ , find  $\cos x$ .

$$\cos x = \frac{-20}{29}$$

9. An arc is 70.7 meters long and is intercepted by a central angle of  $5\pi/4$ . Find the diameter of the circle.

$$\text{Diameter} \approx 36 \text{ m}$$

10. A pendulum is 22.9 centimeters long, and the bob at the end of the pendulum travels 10.5 cm. Find the degree measure of the angle through which the pendulum swings.

$$\theta \approx 26.271^\circ$$

11. A rectangular house is 33 feet by 47 feet. A dog is placed on a leash that is connected to a pole at the corner of the house. If the leash is 15 feet long, find the area the dog has to play. If the owner wants the dog to have 750 square feet to play, how long should the owner make the leash?

15 foot leash  $\rightarrow$  530 ft<sup>2</sup> play area  
750 ft<sup>2</sup> play area  $\rightarrow$  17.54 ft leash

12. Jane rides her bike 3.5 kilometers. If the radius of the tire on the bike is 32 centimeters, determine the number of radians that a spot on the tire will travel during the trip.

$$10,937.5 \text{ radians}$$