

**End of Year Chapter 4 Review**

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

Write the letter for the correct answer in the blank at the right of each question.

1. Rewrite  $1400^\circ$  in radians as a multiple of  $\pi$ .

a.  $\frac{70\pi}{9}$       b.  $\frac{35\pi}{9}$   
 c.  $\frac{140\pi}{9}$       d. none of these

2. Let  $\tan \theta = \frac{7}{24}$ , where  $\sin \theta > 0$ . Find the exact value of  $\sin \theta$ .

a.  $\frac{7}{25}$       b.  $\frac{7}{24}$   
 c.  $\frac{24}{7}$       d.  $\frac{24}{25}$

3. Find the exact value of  $\cos \theta$ .



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

4. **PATIO** The arc length of a sector of a circular patio is 7.7 meters, and the central angle is  $105^\circ$ . Find the diameter of the patio.

a. 4.2 m      b. 12.1 m  
 c. 8.4 m      d. 15.4 m

5. **LOGO** A circular pizza box logo has a sector with a central angle of  $80^\circ$  and a diameter of 16 inches. Find the area of the sector.

a.  $44.7 \text{ in}^2$       b.  $56.9 \text{ in}^2$   
 c.  $178.7 \text{ in}^2$       d.  $201.1 \text{ in}^2$

6. State the period of  $y = 2 \sin(4x + \pi) - 1$ .

a.  $-1$       b. 2  
 c.  $\frac{\pi}{2}$       d.  $\pi$

7. **RAMP** The side view of a skateboard ramp is a triangle  $ABC$  with  $A = 41^\circ$ ,  $B = 107^\circ$ ,  $c = 19$  feet. Find  $b$ .

a. 10.5 ft      b. 13.0 ft  
 c. 27.7 ft      d. 34.3 ft

8. In  $\triangle DEF$ ,  $E = 52^\circ$ ,  $d = 14$ , and  $f = 9$ . Find  $e$ .

a. 8.2      b. 11.0  
 c. 11.1      d. 18.4

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9. **GEOMETRY** Mrs. Lindsay designated a triangular area in the auditorium for art projects. The dimensions of the triangle are 32 feet, 26 feet, and 40 feet. What is the area of the triangle?

- a.  $49.0 \text{ ft}^2$
- b.  $121.0 \text{ ft}^2$
- c.  $296.6 \text{ ft}^2$
- d.  $415.2 \text{ ft}^2$

10. In  $\triangle RST$ ,  $r = 7.8 \text{ in.}$ ,  $s = 4.2 \text{ in.}$ , and  $t = 3.9 \text{ in.}$  Find  $R$ .

- a.  $15.1^\circ$
- b.  $16.2^\circ$
- c.  $78.9^\circ$
- d.  $148.7^\circ$

11. Find  $\arcsin\left(\frac{\sqrt{3}}{2}\right)$ , if it exists.

- a.  $30^\circ$
- b.  $60^\circ$
- c.  $120^\circ$
- d. does not exist

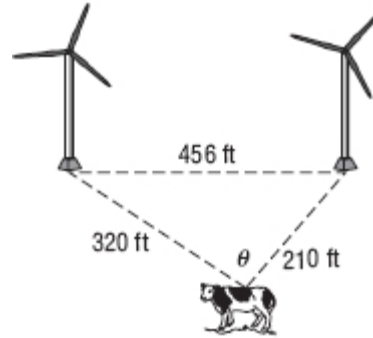
12. **FLAGPOLE** At a point on the ground 27.6 meters from the foot of a flagpole, the angle of elevation to the top of the pole is  $60^\circ$ . What is the height of the flagpole?

- a. 13.8 m
- b. 15.9 m
- c. 23.9 m
- d. 47.8 m

13. If  $f(x) = 4x - 6$  and  $g(x) = x^2 + 8$ , find  $f(g(x))$ .

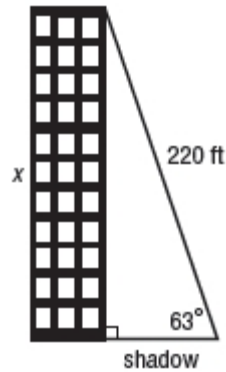
- a.  $f(g(x)) = 4x^2 + 26$
- b.  $f(g(x)) = 4x^2 + 2$
- c.  $f(g(x)) = 16x^2 - 48x + 44$
- d.  $f(g(x)) = 4x^3 - 6x^2 + 32x - 48$

14. **WINDMILLS** Two windmills stand on a field 456 feet apart. A cow is in the field, 320 feet from one windmill and 210 feet from the other, as shown. Find  $\theta$ .



- a.  $38.6^\circ$
- b.  $62.8^\circ$
- c.  $117.2^\circ$
- d.  $141.4^\circ$

15. **ARCHITECTURE** The angle of elevation from the tip of a building's shadow to the top of the building is  $63^\circ$  and the distance is 220 feet. Find the height of the building to the nearest foot.



- a. 100 ft
- b. 112 ft
- c. 178 ft
- d. 196 ft