

1–2 ■ Find the radian measure that corresponds to the given degree measure.

1. (a)  $70^\circ$  (b)  $420^\circ$  (c)  $-240^\circ$  (d)  $-40^\circ$

2. (a)  $24^\circ$  (b)  $-330^\circ$  (c)  $750^\circ$  (d)  $5^\circ$

3–4 ■ Find the degree measure that corresponds to the given radian measure.

3. (a)  $\frac{7\pi}{2}$  (b)  $-\frac{\pi}{3}$  (c)  $\frac{7\pi}{4}$  (d) 2.1

4. (a) 8 (b)  $-\frac{5}{2}$  (c)  $\frac{11\pi}{6}$  (d)  $\frac{3\pi}{5}$

5. Find the length of an arc of a circle of radius 8 m if the arc subtends a central angle of 1 rad.

6. Find the measure of a central angle  $\theta$  in a circle of radius 5 ft if the angle is subtended by an arc of length 7 ft.

7. A circular arc of length 100 ft subtends a central angle of  $70^\circ$ . Find the radius of the circle.

8. How many revolutions will a car wheel of diameter 28 in. make over a period of half an hour if the car is traveling at 60 mi/h?

9. New York and Los Angeles are 2450 mi apart. Find the angle that the arc between these two cities subtends at the center of the earth. (The radius of the earth is 3960 mi.)

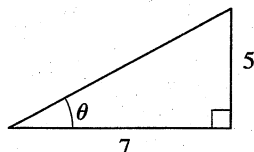
10. Find the area of a sector with central angle 2 rad in a circle of radius 5 m.

11. Find the area of a sector with central angle  $52^\circ$  in a circle of radius 200 ft.

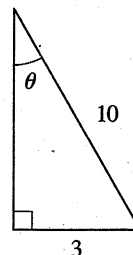
12. A sector in a circle of radius 25 ft has an area of  $125 \text{ ft}^2$ . Find the central angle of the sector.

13–14 ■ Find the values of the six trigonometric ratios of  $\theta$ .

13.

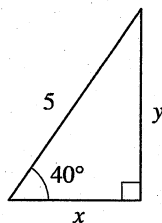


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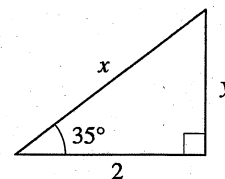


15–18 ■ Find the sides labeled  $x$  and  $y$ , correct to two decimal places.

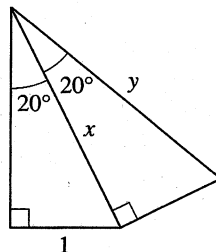
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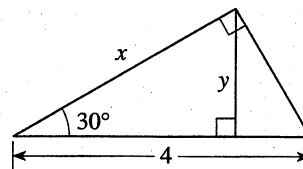
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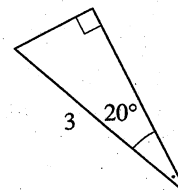


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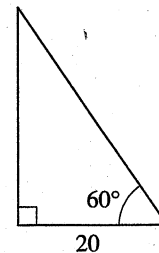


19–20 ■ Solve the triangle.

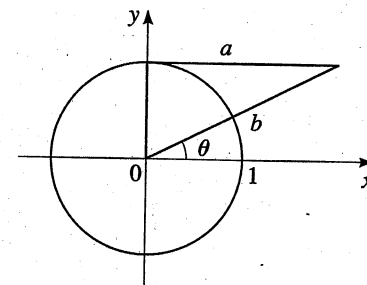
19.



20.



21. Express the lengths  $a$  and  $b$  in the figure in terms of the trigonometric ratios of  $\theta$ .



22. The highest tower in the world is the CN Tower in Toronto, Canada. From a distance of 1 km from its base, the angle of elevation to the top of the tower is  $28.81^\circ$ . Find the height of the tower.

23. Find the perimeter of a regular hexagon that is inscribed in a circle of radius 8 m.