

5.1 In-class Practice

- Sketch each angle in standard position. Give the quadrant of the given angle and state a positive and a negative angle that is coterminal with the given one.
 - 89°
 - 214°
 - 512°
 - -61°
- If an angle measures x° , how can we represent its complement?
 - If an angle measures x° , how can we represent its supplement?
 - If a negative angle has measure x° between 0° and -61° , how can we represent the first positive coterminal angle?
- Calculate.
 - $75^\circ 15' + 83^\circ 32'$
 - $71^\circ 18' - 47^\circ 29'$
 - $180^\circ - 124^\circ 51'$
- Convert each angle measure to decimal degrees.
 - $-70^\circ 48'$
 - $91^\circ 35' 53''$
- Convert each angle measure to degrees, minutes, and seconds.
 - 126.76°
 - 31.4296°
- Find a coterminal angle of least positive measure. (*other than the given one*)
 - 541°
 - -98°
- Give an expression that generates **all angles** coterminal with the given one.
 - 135°
 - -80°
 - 0°
- Find the radian measure of the given angle.
 - 72°
 - -45°
 - -60°
 - -135°
 - 15°
 - 1080°
- Find the degree measure of the angle given in radian measure.
 - $\frac{7\pi}{6}$
 - $-\frac{5\pi}{4}$
 - $-\frac{3\pi}{2}$
 - 2
 - $\frac{\pi}{10}$
 - $\frac{7\pi}{3}$
- Find an angle between 0 and 2π that is coterminal to the given one.
 - $\frac{17\pi}{6}$
 - $-\frac{7\pi}{3}$
 - 67π
 - 10
 - $\frac{15\pi}{4}$
 - $\frac{21\pi}{2}$
- A pulley rotates through 75° in 1 min. How many rotations does the pulley make in an hour?

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12. A tire is rotating 600 times per min. Through how many degrees does a point on the edge of the tire move in $\frac{1}{2}$ sec?

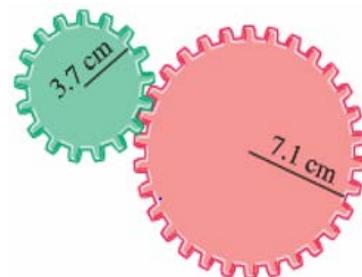


13. Find the length of an arc that subtends a central angle of 2 rad in a circle of radius 2 mi.

14. An arc of length 100 m subtends a central angle θ in a circle of radius 50 m. Find the measure of θ in degrees and in radians.

15. Find the radius of the circle if an arc of length 6 m on the circle subtends a central angle of $\frac{\pi}{6}$ rad.

16. Two gears are adjusted so that the smaller gear drives the larger one. If the smaller gear rotates through an angle of 300° , through how many degrees does the larger gear rotate?



17. The wheels of a car have radius 11 in. and are rotating at 600 rpm. Find the speed of the car in mi/h.

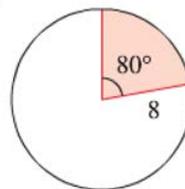
18. The Earth rotates about its axis once every 23 h 56 min 4 s, and the radius of the Earth is 3960 mi. Find the linear speed of a point on the equator in mi/h.

19. A truck with 48-in.-diameter wheels is travelling at 50 mi/h.

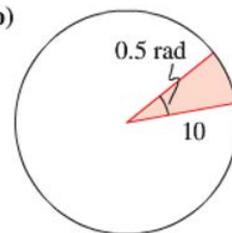
- a) Find the angular speed of the wheels in rad/min.
b) How many revolutions per minute do the wheels make?

20. Find the area of the shaded sector.

(a)



(b)



21. A sector of a circle of radius 24 mi has an area of 288 mi^2 . Find the central angle of this sector.

22. The area of a circle is 72 cm^2 . Find the area of a sector of this circle that subtends a central angle of $\frac{\pi}{6}$ rad.

23. Three circles with radii 1, 2, and 3 ft are externally tangent to one another. Find the area of the sector of the circle of radius 1 that is cut off by the line segments joining the center of this circle to the centers of the other two circles.

