

LESSON
11.4

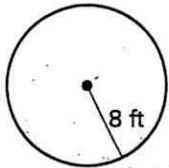
Practice

For use with pages 746-752

$C = 2\pi r$ or $C = \pi d$

Use the diagram to find the indicated measure.

1. Find the circumference.



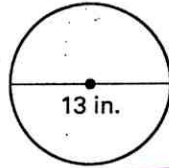
$r = 8$

$C = 2\pi(8)$

$C = 16\pi$ ft exact answer

or $C = 50.27$ ft

2. Find the circumference.

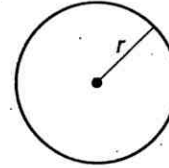


$d = 13$

$C = 13\pi$ in

or $C = 40.84$ in

3. Find the radius.



$C = 65.98$ cm

$65.98 = 2\pi r$
 $\frac{65.98}{(2\pi)} = \frac{2\pi r}{(2\pi)}$

$r = \frac{32.99}{\pi}$ cm

or $r = 10.5$ cm

Find the indicated measure.

Leave in terms of π

4. The exact radius of a circle with circumference 42 meters

$C = 42$ m

$r =$

$C = 2\pi r$
 $42 = 2\pi r$
 $\frac{42}{(2\pi)} = \frac{2\pi r}{(2\pi)}$

$r = \frac{21}{\pi}$ m

5. The exact diameter of a circle with circumference 39 centimeters

$C = 39$ cm

$d =$

$C = \pi d$
 $39 = \pi d$
 $\frac{39}{\pi} = \frac{\pi d}{\pi}$

$d = \frac{39}{\pi}$ cm

6. The exact circumference of a circle with diameter 15 inches

$d = 15$ in

$C =$

$C = \pi d$
 $C = \pi(15)$

$C = 15\pi$ in

7. The exact circumference of a circle with radius 27 feet

$r = 27$ ft

$C =$

$C = 2\pi r$
 $C = 2\pi(27)$

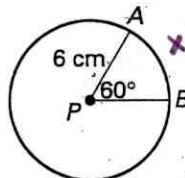
$C = 54\pi$ ft

central angle

$\frac{\text{Arc Length}}{C} = \frac{m \widehat{AB}}{360}$
 $\frac{C}{2\pi r}$

Find the length of \widehat{AB} .

8.



x cm

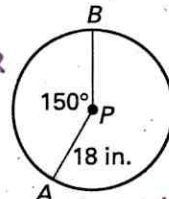
$\frac{x}{2\pi(6)} = \frac{60}{360}$
 $\frac{x}{12\pi} = \frac{60}{360}$

$360x = 60(12\pi)$

$360x = 720\pi$

$x = 2\pi$ cm or 6.28 cm

9.



x

$\frac{x}{2\pi(18)} = \frac{150}{360}$
 $\frac{x}{36\pi} = \frac{150}{360}$

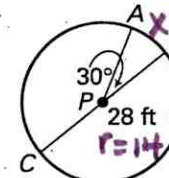
$360x = 150(36\pi)$

$360x = 5400\pi$

$x = 15\pi$ in

or 47.12 in

10.



$d = 28$

$\frac{x}{\pi(28)} = \frac{30}{360}$
 $\frac{x}{28\pi} = \frac{30}{360}$

$360x = 30(28\pi)$

$360x = 840\pi$

$x = \frac{7\pi}{3}$ ft

or 7.33 ft

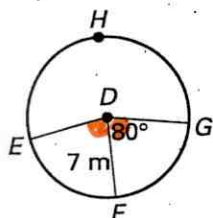
LESSON
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Practice *continued*

For use with pages 746-752

In $\odot D$ shown below, $\angle EDF \cong \angle FDG$. Find the indicated measure.

measure of the arc



$$\frac{\text{Arc Length}}{C} = \frac{\text{Central Angle}}{360}$$

$\hookrightarrow 2\pi r$

11. $m\widehat{EFG} = 80 + 80$

$m\widehat{EFG} = 160^\circ$

12. $m\widehat{EHG} = 360 - 160$

$m\widehat{EHG} = 200^\circ$

13. Length of \widehat{EFG}

$$\frac{x}{2\pi(7)} = \frac{160}{360}$$

$m\widehat{EFG} = 160^\circ$
 $360x = 160(14\pi)$
 $360x = 2240\pi$

$x = 19.55 \text{ m}$

14. Length of \widehat{EHG} $m\widehat{EHG} = 200^\circ$

$$\frac{x}{2\pi(7)} = \frac{200}{360}$$

$360x = 200(14\pi)$

$x = 24.43 \text{ m}$

15. $m\widehat{EHF} = 360 - 80$

$m\widehat{EHF} = 280^\circ$

16. Length of \widehat{FEG}

$$\frac{x}{2\pi(7)} = \frac{280}{360}$$

$360x = 280(14\pi)$

$x = 34.21 \text{ m}$

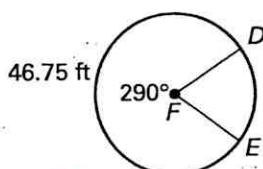
$m\widehat{FEG} = 280^\circ$

Find the indicated measure.

17. $m\widehat{AB}$

$m\widehat{AB} = 114^\circ$

18. Circumference of $\odot F$

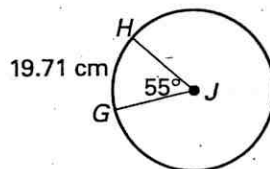


$$\frac{46.75}{x} = \frac{290}{360}$$

$290x = 360(46.75)$

$C(\odot F) = 58$

19. Radius of $\odot J$



$$\frac{19.71}{x} = \frac{55}{360}$$

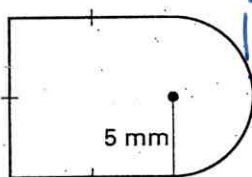
$55x = 360(19.71)$

$x = 129.01$

$\frac{2\pi r}{(2\pi)} = \frac{129.01}{(2\pi)}$
 $r = 20.5 \text{ cm}$

Find the perimeter of the region.

20.

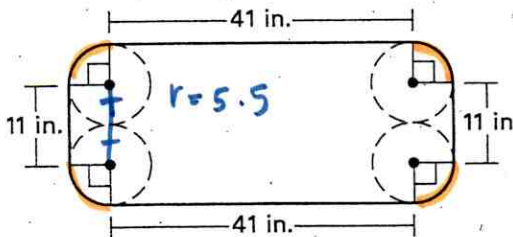


$P = 45.7 \text{ mm}$

$s = 10$ $r = 5$

$P(\text{square}) + \frac{C(\text{circle})}{2}$
- 1 side
 $4(10) + \frac{2\pi(5)}{2}$
 $40 + 10\pi$
 $30 + 5\pi$

21.



$2(41) + 2(11) + 2\pi(5.5)$

$P = 138.56 \text{ in}$

$$\frac{\text{Arc Length}}{2\pi r} = \frac{m\widehat{AB}}{360}$$

LESSON 11.4 Practice *continued*
For use with pages 746–752

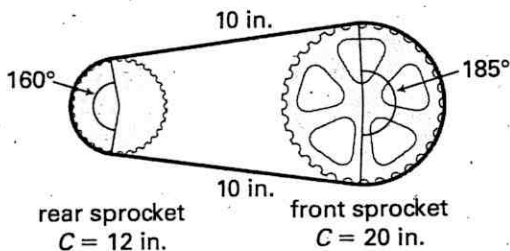
22. In the table below, \widehat{AB} refers to the arc of a circle. Complete the table.

	#1	#2	#3	#4	#5	#6
Radius	4	11	9.8	4.8	9.5	10.7
$m\widehat{AB}$	30°	43°	105°	75°	88.2°	270°
Length of \widehat{AB}	2.09	8.26	17.94	6.3	14.63	50.4

5) $\frac{14.63}{2\pi(9.5)} = \frac{x^\circ}{360}$
 6) $\frac{x}{2\pi(10.7)} = \frac{270}{360}$

1) $\frac{x}{2\pi(4)} = \frac{30}{360}$ 2) $\frac{8.26}{2\pi(11)} = \frac{x^\circ}{360}$ 3) $\frac{17.94}{2\pi r} = \frac{105}{360}$ 4) $\frac{6.3}{2\pi r} = \frac{75}{360}$

23. **Bicycles** The chain of a bicycle travels along the front and rear sprockets, as shown. The circumference of each sprocket is given.



a. About how long is the chain?

b. On a chain, the teeth are spaced in $\frac{1}{2}$ inch intervals. About how many teeth are there on this chain?

24. **Enclosing a Garden** You have planted a circular garden adjacent to one of the corners of your garage, as shown. You want to fence in your garden. About how much fencing do you need?

