

Name: \_\_\_\_\_

Period: \_\_\_\_\_

### 11.2 Radians

Find the radian measure of angle  $\theta$ , if  $\theta$  is a central angle in a circle of radius  $r$ , and  $\theta$  cuts off an arc of length  $s$ .

1.  $r = 3$  cm,  $s = 9$  cm

2.  $r = 6$  cm,  $s = 3$  cm

3.  $r = 10$  inches,  $s = 5$  inches

4.  $r = 5$  inches,  $s = 10$  inches

5.  $r = 4$  inches,  $s = 12\pi$  inches

6.  $r = 3$  inches,  $s = 12$  inches

7.  $r = \frac{1}{4}$  cm,  $s = \frac{1}{2}$  cm

8.  $r = \frac{1}{4}$  cm,  $s = \frac{1}{8}$  cm

9. Convert  $\frac{11\pi}{12}$  radians to degrees.

10. Convert  $\frac{\pi}{8}$  radian to degrees.

Convert the following measure to radians.

11.  $30^\circ$

12.  $60^\circ$

13.  $90^\circ$

14.  $270^\circ$

15.  $260^\circ$

16.  $340^\circ$

17.  $-150^\circ$

18.  $-210^\circ$

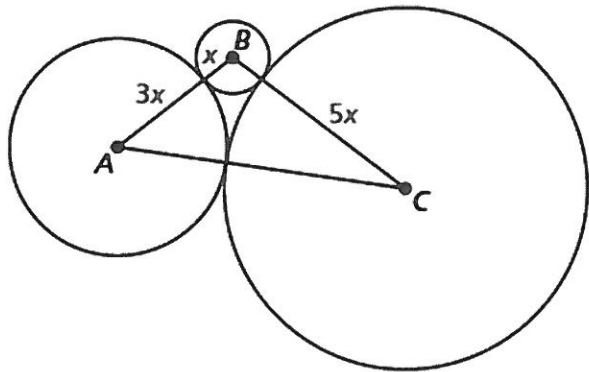
19.  $420^\circ$

20.  $390^\circ$

21.  $-135^\circ$

22.  $-120^\circ$

23. **MATHEMATICAL CONNECTIONS** The sum of the circumferences of circles  $A$ ,  $B$ , and  $C$  is  $63\pi$ . Find  $AC$ .



24. An arc in a circle where the radius is 3 cm has a length of 12 cm. Find the measure of the central angle in radians. Then, convert the angle to degrees.

In Exercises 25 and 26, find the circumference of the circle with the given equation. Write the circumference in terms of  $\pi$ .

25.  $x^2 + y^2 = 16$

26.  $(x + 2)^2 + (y - 3)^2 = 9$

Convert the following angle measures from radians to degrees.

31.  $\frac{\pi}{3}$

32.  $\frac{\pi}{4}$

33.  $\frac{2\pi}{3}$

34.  $\frac{3\pi}{4}$

35.  $\frac{-7\pi}{6}$

36.  $\frac{-5\pi}{6}$

37.  $\frac{5\pi}{3}$

38.  $\frac{7\pi}{3}$

39.  $4\pi$

40.  $3\pi$

41.  $\frac{\pi}{12}$

42.  $\frac{5\pi}{12}$