AdvAlg2, Homework due Tuesday, 5/2

Find the distance traveled by a wheel of the given diameter as it makes the given number of revolutions. Use $\pi \approx 3.14$.

1. 20 cm; 1.5 revolutions

2. 3.5 m; 2.2 revolutions

3. 8 m; 7.7 revolutions

4. 10 m; 0.4 revolutions

Find the radius of a wheel such that the wheel will travel the given distance in the given number of revolutions. Use $\pi \approx 3.14$.

5. 628 cm; 5 revolutions

6. 56.52 m; 6 revolutions

7. 94.2 m; 8 revolutions

8. 70.65 m; 4.5 revolutions

Sketch the following angles in standard position, indicating the rotation with a curved arrow.

9. $\frac{3}{4}$ revolution counterclockwise
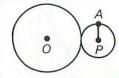
10. $\frac{7}{8}$ revolution counterclockwise

11. $\frac{2}{3}$ revolution counterclockwise

12. $1\frac{1}{4}$ revolutions clockwise

13. $\frac{5}{6}$ revolution clockwise

14. $2\frac{3}{8}$ revolutions counterclockwise

15–20. Express each angle in Exercises 9–14 above as a number of revolutions in the opposite direction, clockwise or counterclockwise.

In Exercises 21–23, use $\pi \approx 3.14$.

21. How far does a point on the outer tip of the minute hand of a clock travel in 5 min if the hand is 21 cm long?

22. How far does a point on the outer tip of the hour hand of a clock travel in 5 min if the hand is 6.3 cm long?

23. A satellite circles the earth once every 6 h. If the satellite is 7000 km from the center of the earth, what is its speed?

24. The radius of the wheel with center O is 4 times that of the wheel with center P. If wheel O is stationary and wheel P rolls around it once, how many revolutions does radius $\overline{PA}$ make?

25. In Exercise 24 above, if wheel P were rolling *inside* wheel O, how many revolutions would radius $\overline{PA}$ make?