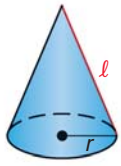
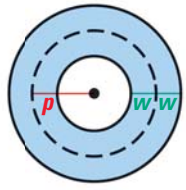
GEOMETRY **Solve the formula for the indicated variable. Then evaluate the rewritten formula for the given values. (Use 3.14 for π.)**

27. Surface area of a cone: $S = \pi r\ell + \pi r^2$. Solve for ℓ. Find ℓ when $S = 283$ cm^2 and $r = 5$ cm.



28. Area of a circular ring: $A = 4\pi pw$. Solve for p. Find p when $A = 905$ ft^2 and $w = 9$ ft.



29. **TAKS REASONING** *Describe* a real-world situation where you would want to solve the distance traveled formula $d = rt$ for t.

CHALLENGE **Solve the literal equation for a.**

30. $x = \dfrac{a + b + c}{ab}$

31. $y = x\left(\dfrac{ab}{a - b}\right)$

PROBLEM SOLVING

EXAMPLE 4 on p. 186 for Exs. 32–34

32. **CARPENTRY** The penny size d of a nail is given by $d = 4n - 2$ where n is the length (in inches) of the nail.

a. Solve the formula for n.

b. Use the new formula to find the lengths of nails with the following penny sizes: 5, 12, 16, and 20.

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33. **BOWLING** To participate in a bowling league, you pay a \$25 sign-up fee and \$12 for each league night that you bowl. So, the total cost C (in dollars) is given by the equation $C = 12x + 25$ where x is the number of league nights you bowled.

a. Solve the equation for x.

b. How many league nights have you bowled if you spent a total of \$145? \$181? \$205?

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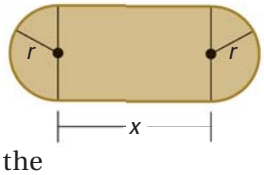
34. **MULTIPLE REPRESENTATIONS** An athletic facility is building an indoor track like the one shown. The perimeter P (in feet) of the track is given by $P = 2\pi r + 2x$.



a. **Writing an Equation** Solve the formula for x.

b. **Making a Table** The perimeter of the track will be 660 feet. Use the rewritten formula to make a table that shows values of x to the nearest foot when r is 50 feet, 51 feet, 52 feet, and 53 feet. (Use 3.14 for π.)

c. **Drawing a Graph** Plot the ordered pairs from your table. Look for a pattern in the points. Use the pattern to find x when r is 54 feet.

35. **WRITING** You work as a server at a restaurant. During your shift, you keep track of the bills that you give the tables you serve and the tips you receive from the tables. You want to calculate the tip received from each table as a percent of the bill. *Explain* how to rewrite the percent equation to make it easier to calculate the percent tip from each table.

= WORKED-OUT SOLUTIONS on p. WS1 = STANDARDIZED AND REASONING = MULTIPLE REPRESENTATIONS