**Solve each problem. Round to the nearest tenth, if necessary.**

See Problem 4.

**33. Travel** A vehicle travels on a highway at a rate of 65 mi/h. How long does it take the vehicle to travel 25 mi?

**34. Baseball** You can use the formula $a = \frac{h}{n}$ to find the batting average $a$ of a batter who has $h$ hits in $n$ times at bat. Solve the formula for $h$. If a batter has a batting average of .290 and has been at bat 300 times, how many hits does the batter have?

STEM **35. Construction** Bricklayers use the formula $n = 7\ell h$ to estimate the number $n$ of bricks needed to build a wall of length $\ell$ and height $h$, where $\ell$ and $h$ are in feet. Solve the formula for $h$. Estimate the height of a wall 28 ft long that requires 1568 bricks.

## B Apply

**Solve each equation for the given variable.**

**36.** $2m - nx = x + 4$ for $x$

**37.** $\frac{x}{a} - 1 = \frac{y}{b}$ for $x$

**38.** $ax + 2xy = 14$ for $y$

**39.** $V = \frac{1}{3}\pi r^2 h$ for $h$

**40.** $A = \left(\frac{f+g}{2}\right)h$ for $g$

**41.** $2(x + a) = 4b$ for $a$

**42. Think About a Plan** The interior angles of a polygon are the angles formed inside a polygon by two adjacent sides. The sum $S$ of the measures of the interior angles of a polygon with $n$ sides can be found using the formula $S = 180(n - 2)$. The sum of a polygon's interior angle measures is 1260°. How many sides does the polygon have?

- What information are you given in the problem?
- What variable do you need to solve for in the formula?

STEM **43. Weather** Polar stratospheric clouds are colorful clouds that form when temperatures fall below −78°C. What is this temperature in degrees Fahrenheit?

Polar stratospheric clouds

STEM **44. Science** The energy $E$ of a moving object is called its *kinetic energy*. It is calculated using the formula $E = \frac{1}{2}mv^2$, where $m$ is the object's mass in kilograms and $v$ is its speed in meters per second. The units of kinetic energy are $\frac{\text{kilograms} \cdot \text{meters}^2}{\text{second}^2}$, abbreviated as kg • $m^2/s^2$.

**a.** Solve the given formula for $m$.

**b.** What is the mass of an object moving at 10 m/s with a kinetic energy of 2500 kg • $m^2/s^2$?

**45. Error Analysis** Describe and correct the error made in solving the literal equation at the right for $n$.

$$2m = -6n + 3$$
$$2m + 3 = -6n$$
$$\frac{2m + 3}{-6} = n$$

**46. Geometry** The formula for the volume of a cylinder is $V = \pi r^2 h$, where $r$ is the cylinder's radius and $h$ is its height. Solve the equation for $h$. What is the height of a cylinder with volume 502.4 $cm^3$ and radius 4 cm? Use 3.14 for $\pi$.

**47. Density** The density of an object is calculated using the formula $D = \frac{m}{V}$, where $m$ is the object's mass and $V$ is its volume. Gold has a density of 19.3 $g/cm^3$. What is the volume of an amount of gold that has a mass of 96.5 g?