

1. a. *Multiple Choice.* Which of the equations below is a formula for  $y$  in terms of other variables?           **b**
- (a)  $b = y - mx$       (b)  $y = mx + b$       (c)  $x = \frac{y - b}{m}$
- b. What are the other variables?            **$m, x, b$**

**Uses Objective J:** Evaluate formulas in real situations

2. A sports concession sells T-shirts and caps. The price  $P$  of a purchase, including sales tax, is given by the formula
- $$P = 1.07(9.75C + 12T)$$
- where  $C$  = the number of caps purchased and  $T$  = the number of T-shirts purchased. Find the cost of each order. If rounding is necessary, round up to the next cent.
- a. 3 caps and 2 T-shirts           **\$56.98**
- b. 4 T-shirts           **\$51.36**
- c. 1 cap           **\$10.44**
3. Use the formula  $S = 4\pi r^2$  for the surface area of a sphere. Find the surface area of a basketball with radius 4.8 inches.            **$\approx 289.5 \text{ in.}^2$**
4. The formula  $M = 0.38E$  gives the weight on Mars  $M$  of a person who weighs  $E$  pounds on Earth. If a person weighs 120 pounds on Earth, how much does that person weigh on Mars?           **45.6 pounds**
5. The formula  $t = 0.15b$  can be used to find the amount of a tip  $t$  on a restaurant bill of  $b$  dollars. What would the tip be on a restaurant bill of \$18.49?           **\$2.77**
6. Mrs. Day wants to invest in stocks that are expected to pay 6.5% interest and bonds that should pay 5%. For an investment of  $S$  dollars in stocks and  $B$  dollars in bonds, the amount of yearly income  $I$  is given by this formula:  $I = 0.065S + 0.05B$
- How much money will Mrs. Day earn each year if
- a. she invests \$1,000 in stocks and \$2,000 in bonds?           **\$165**
- b. she invests \$1,500 in stocks and \$1,500 in bonds?           **\$172.50**
7. Carpet often comes in rolls 12 feet wide. The number of square yards  $Y$  in a piece of carpet  $L$  feet long is given by the formula
- $$Y = \frac{4}{3}L.$$
- Find the number of square yards in a piece of carpet that is
- a. 15 feet long.           **20 yd<sup>2</sup>**
- b. 22 feet long.           **29 $\frac{1}{3}$  yd<sup>2</sup>**
8. When Jeff calls his uncle, the cost  $C$  of a call for  $m$  minutes is given by the formula
- $$C = 0.55 + 0.15m.$$
- Find the cost of a 7-minute call.           **\$1.60**
9. The formula  $C = \frac{5}{9}(F - 32)$  converts the temperature from degrees Fahrenheit to degrees Celsius.
- Find the Celsius temperature to the nearest degree for
- a. 77°F.           **25°C**
- b. 54°F.           **12°C**
- c. 98.6°F.           **37°C**
- d. 32°F.           **0°C**