EVALUATION: You can estimate the answer by subtracting 30° from the Fahrenheit temperature and dividing the answer by 2: $86 - 30 = 56$; $56 \div 2 = 28°$. Since 28° is close to 30°, the answer is probably correct.

EXAMPLE: The distance (d) an object falls in feet is $d = 32t^2$ where t is the time in seconds. Find the distance an object falls in 3 seconds.

SOLUTION:

GOAL: You are being asked to find the distance an object falls in 3 seconds.

STRATEGY: Use the formula $d = 32t^2$.

IMPLEMENTATION:

$$d = 32t^2$$
$$= 32(3)^2$$
$$= 32 \cdot 9$$
$$= 288 \text{ feet}$$

EVALUATION: Estimate the answer by rounding 32 to 30 and then multiplying $30 \times 9 = 270$. Since this estimate is close to 288, the answer is probably correct.

Try These

1. Find the amount of work (W) done by applying a force (F) of 60 pounds moving a distance (d) of 9 feet. Use $W = Fd$.

2. Find the distance (D) an automobile travels at a rate (R) of 35 miles per hour in 2.5 hours (T). Use $D = RT$.

3. Find the amount of interest (I) earned on a principal (P) of $6000 at a rate ($R$) of 7% for a time ($T$) of 8 years. Use $I = PRT$.

4. Find the perimeter (P) of a rectangle whose length (l) is 20 inches and whose width (w) is 8 inches. Use $P = 2l + 2w$.

5. Find the Celsius temperature (C) when the Fahrenheit temperature (F) is 50°. Use $C = \frac{5}{9}(F - 32°)$.

6. Find the volume (V) of a cylinder in cubic feet when the height (h) is 19 feet and the radius (r) of the base is 3 feet. Use $V = 3.14r^2h$.

7. Find the force (F) of the wind against a flat surface whose area (A) is 20 square feet when the wind speed (s) is 35 miles per hour. Use $F = 0.004As^2$.

8. Find the surface area (A) of a cube in square feet when each side (s) measures 12 inches. Use $A = 6s^2$.

9. Find the current (I) in amperes when the electromotive force (E) is 18 volts and the resistance (R) is 6 ohms. Use $I = \frac{E}{R}$.

10. Find the Fahrenheit temperature (F) when the Celsius temperature (C) is 50°. Use $F = \frac{9}{5}C + 32°$.

SOLUTIONS:

1. $W = Fd$

   $= 60 \cdot 9$

   $= 540$ ft.-lb.

2. $D = RT$

   $= 35 \cdot 2.5$

   $= 87.5$ miles

3. $I = PRT$

   $= \$6000 \cdot 7\% \cdot 8$

   $= \$6000 \cdot (0.07) \cdot 8$

   $= \$3360$

4. $P = 2l + 2w$

$= 2 \cdot 20 + 2 \cdot 8$

$= 40 + 16$

$= 56$ in.

5. $C = \dfrac{5}{9}(F - 32°)$

$= \dfrac{5}{9}(50 - 32°)$

$= \dfrac{5}{9} \cdot 18$

$= 10°$

6. $V = 3.14 r^2 h$

$= 3.14 \cdot 3^2 \cdot 19$

$= 3.14 \cdot 9 \cdot 19$

$= 536.94$ cubic feet

7. $F = 0.004 A s^2$

$= 0.004 \cdot 20 \cdot 35^2$

$= 0.004 \cdot 20 \cdot 1225$

$= 98$ pounds

8. $A = 6s^2$

$= 6 \cdot 12^2$

$= 6 \cdot 144$

$= 864$ square inches

9. $I = \dfrac{E}{R}$

    $= \dfrac{18}{6}$

    $= 3$ amperes

10. $F = \dfrac{9}{5}C + 32°$

    $= \dfrac{9}{5} \cdot 50 + 32$

    $= 90 + 32$

    $= 122°$