



EXAMPLE 4 TAKS REASONING: Multi-Step Problem

TEMPERATURE You are visiting Toronto, Canada, over the weekend. A website gives the forecast shown. Find the low temperatures for Saturday and Sunday in degrees Fahrenheit. Use the formula $C = \frac{5}{9}(F - 32)$ where C is the temperature in degrees Celsius and F is the temperature in degrees Fahrenheit.

3 Day Forecast for Toronto		
Friday	Saturday	Sunday
 Sunny High 21°C Low 13°C	 Sunny High 22°C Low 14°C	 Partly Cloudy High 16°C Low 10°C

REWRITE FORMULAS

When using a formula for multiple calculations, you may find it easier to rewrite the formula first.

Solution

► **STEP 1** Rewrite the formula. In the problem, degrees Celsius are given and degrees Fahrenheit need to be calculated. The calculations will be easier if the formula is written so that F is a function of C .

$$C = \frac{5}{9}(F - 32) \quad \text{Write original formula.}$$

$$\frac{9}{5} \cdot C = \frac{9}{5} \cdot \frac{5}{9}(F - 32) \quad \text{Multiply each side by } \frac{9}{5}, \text{ the reciprocal of } \frac{5}{9}.$$

$$\frac{9}{5}C = F - 32 \quad \text{Simplify.}$$

$$\frac{9}{5}C + 32 = F \quad \text{Add 32 to each side.}$$

► The rewritten formula is $F = \frac{9}{5}C + 32$.

STEP 2 Find the low temperatures for Saturday and Sunday in degrees Fahrenheit.

Saturday (low of 14°C)

$$\begin{aligned} F &= \frac{9}{5}C + 32 \\ &= \frac{9}{5}(14) + 32 \\ &= 25.2 + 32 \\ &= 57.2 \end{aligned}$$

► The low for Saturday is 57.2°F.

Sunday (low of 10°C)

$$\begin{aligned} F &= \frac{9}{5}C + 32 \\ &= \frac{9}{5}(10) + 32 \\ &= 18 + 32 \\ &= 50 \end{aligned}$$

► The low for Sunday is 50°F.



GUIDED PRACTICE for Example 4

- Use the information in Example 4 to find the high temperatures for Saturday and Sunday in degrees Fahrenheit.