Exercise 216

The function \( C = T(F) = \left(\frac{5}{9}\right)(F - 32) \) converts degrees Fahrenheit to degrees Celsius.

a. Find the inverse function \( F = T^{-1}(C) \)

b. What is the inverse function used for?

Solution

Solve the given function for \( F \).

\[
C = \frac{5}{9}(F - 32)
\]

Multiply both sides by \( \frac{9}{5} \).

\[
\frac{9}{5}C = F - 32
\]

Add 32 to both sides.

\[
\frac{9}{5}C + 32 = F
\]

Therefore,

\[
F = T^{-1}(C) = \frac{9}{5}C + 32.
\]

The inverse function is used when you have a temperature in degrees Celsius, and you want to know what it is in degrees Fahrenheit.