

## Conversion from Fahrenheit to Celsius Simplified?

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My friend had just returned from the United States after a four-week study tour. His family organized a welcome-home party and invited family members and friends. Everyone was eager to hear about the study tour.

I asked my friend to tell us in what ways he found the United States different from Canada. My friend, a mathematics teacher, focused on the system of measurement in his comparison, and he responded, "The Americans do not use the metric system. For example, distances are measured not in kilometres but in miles, and weights are measured not in kilograms but in pounds. They use gallons, not litres, for capacity measurements, and those gallons are different from the imperial gallons once used here in Canada. The most problematic issue is the measurement of temperatures. In the U.S., temperatures are measured in degrees Fahrenheit, and in Canada we measure temperatures in degrees Celsius. To convert the temperature from Celsius to Fahrenheit, one must multiply the degrees measured in Celsius by  $\frac{9}{5}$  and then add 32 to the product. For example, a temperature of  $0^{\circ}\text{C}$  is equivalent to  $32^{\circ}\text{F}$ , and  $100^{\circ}\text{C}$  is equivalent to  $212^{\circ}\text{F}$ ."

My friend's wife smiled as she listened, and she said, "But the conversion is pretty simple. If one is given a temperature in degrees Fahrenheit"—she wrote a three-digit number on a piece of paper—"one simply crosses out the first digit and places it at the end of the number. The new number is the converted value in degrees Celsius."

I simply could not accept this simplistic method of converting temperatures from degrees Fahrenheit to degrees Celsius and, therefore, checked it for myself. I could not believe it when the result proved to be correct. I was perplexed. Still, I remained unconvinced that this method would hold true for all temperature values selected, partly because my friend's wife had a big grin on her face. I kept trying this method for various temperature values, but no matter what other value I chose, I could not make it work. My friend's wife had selected the only three-digit temperature value for which this simplistic conversion method works.

Do you know which three-digit temperature value my friend's wife wrote on her paper?

$$32^{\circ}\text{F} = 0^{\circ}\text{C}$$