TEMPERATURE CONVERSIONS

In this lesson you will learn how to convert between Celsius, Fahrenheit, and Kelvin temperatures.

You will use simple equations to perform this task. To change from Celsius to Fahrenheit or from C° to F° you can use the following equations:

$$C° = \frac{F° - 32}{1.8}$$

$$F° = 1.8C° + 32$$

The equations are derived from the fact that water freezes at 32° above zero on the Fahrenheit scale and zero on the Celsius scale. The 1.8 comes from the fact that a Celsius degree is 1.8 times larger than a Fahrenheit degree.

Later when you solve problems dealing with gases it will be important to convert Celsius temperatures into Kelvin temperatures. by usung the following equation:

$$\text{Kelvins (K)} = C° + 273$$

STUDENT PRACTICE

1. Convert 165°F into a Celsius temperature.

2. Convert 165°F into a Kelvin temperature.

3. Convert 98.6° F (normal body temperature) into a Celsius temperature.

4. Change 90° C into a Fahrenheit temperature.

5. Convert 25° C into a Kelvin temperature.

6. Absolute zero, the coldest possible temperature is equal to 0 Kelvins. What is absolute zero on the Celsius scale?

7. What is absolute zero on the Fahrenheit scale?

8. Convert -20.0 °C to a Fahrenheit temperature.

9. A personal computer is designed to operate between 50.0°F to 104°F. What is the temperature range on the a) Celsius scale and b) the Kelvin scale?

10. Comfortable room temperature is about 24°C. What is this temperature in a) Fahrenheit degrees and b) Kelvins

11. Convert -40 °C to a Fahrenheit temperature.