8. The efficiency of a Carnot engine depends only upon the temperatures of the two heat reservoirs.

$$e_c = (T_H - T_L) / T_H$$

This calculation requires that we use absolute temperature in Kelvin, so we must first convert the two Celsius temperatures to Kelvin by adding 273.2 to each. The boiling point of water is 100^oC and the freezing point of water is 0^oC, so $T_H = 373.2$ K and $T_L = 273.2$ K

$$e_c = (373.2 \text{ K} - 273.2 \text{ K}) / 373.2 \text{ K}$$

$$e_c = 0.27$$

or expressed as a percentage $e_c = 27\%$