

Energy Practice Problems Level 1

Formulas: $C = 5/9(^{\circ}\text{F} - 32)$

Heat = $MT\Delta S$

$K = ^{\circ}\text{C} + 273$

$H = H_f \times M$

- Each of the following is a temperature reading in one of three systems: Fahrenheit, Celsius, or Kelvin. Change the reading to its equivalent in both of the other scales.
 - 70°F
 - 25°C
 - 100°F
 - 373 K
 - 85°C
 - 215°C
 - 90°F
 - 285 K
 - 35°C
 - 305 K
- Calculate the number of calories of heat absorbed or released in each of the following changes.
 - 40.0 g of water at 25.0°C raised to 60.0°C .
 - 125 g of water at 10.0°C raised to 90.0°C .
 - 75.0 g of water at 9.8°C raised to 22.4°C .
 - 44.8 g of iron at 80.5°C cooled to 62.6°C . The specific heat of iron is $0.11\text{ cal}/^{\circ}\text{C} \times \text{g}$.
 - 64.82 g of aluminum metal at 100.0°C cooled to 82.5°C . The specific heat of aluminum metal is $0.215\text{ cal}/^{\circ}\text{C} \times \text{g}$.
- Calculate the amount of heat given off or taken on during each of the following changes:
 - The melting of 25.0 g of iron; the heat of fusion of iron is 63.7 cal/g .
 - The boiling of 125 g of antimony; the heat of vaporization of antimony is 380 cal/g .
 - The melting of 235 g of bismuth; the heat of fusion of bismuth is 12.4 cal/g .
 - The boiling of 350 g of chromium; the heat of vaporization of chromium is 1560 cal/g .