Name: _____ ***Date:*** _____ ***Period:*** _____

Thermal Energy Practice Problems [Q=mC▲T]

1) 5620 J of heat are applied to a glass (c = 664 $\frac{J}{g\,^{\circ}C}$) mass 45 g at a temperature of 15°C. Compute the final temperature of the glass.

2) How much heat is required to raise the temperature of 152 g of Al (c = 903 $\frac{J}{g\,^{\circ}C}$) from 25° C to 154° C?

3) What is the specific heat(C) of a substance if 2350 J of heat raises the temperature of a 52 g sample 60° C?

4) How much energy will be needed to heat 378.5 kg of water from 48.0°C to 68.0°C? (Note that water has a specific heat capacity of 4.184J/g°C)

5) How much energy is released when 554.4 kg of water cools from 45.0°C to 11.0°C? (Note that water has a specific heat capacity of 4.184J/g°C)

6) If the amount of energy needed to heat 4.50 g rock sample from 45.0°C to 89.9°C is 42.6 J, what is the specific heat capacity of this sample?

7) The specific heat capacity of iron is 0.45 J/g °C. How many joules of energy are needed to warm 9.97 g of iron from 16.75 °C to 48.25 °C?

8) How many joules of energy would be required to heat 24.2 g of carbon from 23.6°C to 54.2°C? (Specific heat capacity of carbon = 0.71 J/g °C.)

9) 798 J of heat are applied to a sample with specific heat of c = 64 $\frac{J}{g\,^{\circ}C}$ and a mass 78.5 g at a temperature of 25°C. Compute the final temperature of the sample.

10) How many joules of energy would be released when 658 g of carbon cools from 74.6°C to 54.2°C? (Specific heat capacity of carbon = 0.71 J/g °C.)