Name _____

Energy and Temperature

Convert the following temperatures:

1) 573^{o}C = ? K _____

2) 0 K = ? ^{o}C _____

3) -86 ^{o}C = ? K _____

4) 273K = ? ^{o}C _____

5) 18 ^{o}C = ? K _____

6) 1286K = ? ^{o}C _____

7) 26.4K = ? ^{o}C _____

8) 100 ^{o}C = ? K _____

Convert the following energies: (remember 1cal = 4.184J)

9) 534J = ? cal _____

10) 4500J = ? Cal _____

11) 900 kJ = ? Cal _____

12) 2.3x10^{-4} kcal = ? J _____

13) 18,200 cal = ? Cal _____

14) 52.5 kcal = ? kJ _____

15) 782 Cal = ? J _____

16) 9.69x10^{5}J = ? kcal _____

Solve the following problems (remember it takes 1 cal of energy to heat each gram of H_2O 1^{o}C):

17) How many Joules of heat were absorbed by 50.g of water if its temperature increased 30.^{o}C?

18) The temperature of a 1kg sample of water increased from 10^{o}C to 313K. How many calories of energy were absorbed by the water?

19) How many Joules of energy are contained in a candy bar that is listed to contain 250.Cal?

20) How much would the temperature of 50. grams of water change if all the energy was transferred to thermal energy as it was stirred by the dropping of a 50.0kg weight that fell a distance of 2.00m. The unit Joule is equal to a kg m^{2}/s^{2}, and the acceleration due to gravity is 9.80m/s^{2}.

21) A teenager should have about a 2200. Cal a day diet. The average person contains about 56.0 kg of water in their body. If all of that energy was used to rapidly heat the 56.0 kg of water, then how much would the temperature of the water change?