Chemistry 121/122

Use conversion factors and dimensional analysis to answer these problems.

1 calorie = 4.184 joules.

1. A person uses 550kcal of energy to run a race. Convert the energy used for the race to the following energy units:
2. calories
3. joules
4. kilojoules
5. Convert each of the following energy units:
6. 3500cal to kcal
7. 415J to cal
8. 28cal to kJ
9. 4.5kJ to cal
10. Convert each of the following energy units:
11. 8.1kcal to cal
12. 325J to kJ
13. 2.50kcal to J
14. A burning match releases 1100J of energy. Convert the energy released by 20 matches to the following energy units:
15. kilojoules
16. calories
17. kilocalories
18. It takes 4184J of energy to raise the temperature of 1.000kg of water 1.000oC.
19. How many joules does it take to raise the temperature of 1.50kg of water 1.00oC?
20. How many joules does it take to raise the temperature of 1.0kg of water 15.5oC?
21. How many kilocalories does it take to raise the temperature of 2.45kg of water 51.0oC?
22. Temperature Conversions

Complete the table below.

|  |  |
| --- | --- |
| Celsius | Kelvin |
| 37.0oC |  |
| -27oC |  |
|  | 224K |
| 62oC |  |
|  | 0K |
| 145oC |  |
| 100oC |  |
|  | 100K |
|  | 875K |
| 0oC |  |