

Heat Energy and Temperature

Name: _____

Period: _____

Date: _____

Calculate the heat energy from the information provided and using the formula: Heat Energy = Mass x Change in temperature x Specific heat

1. How much heat is needed to raise the temperature of 4 grams of aluminum 5 degrees Celsius? The specific heat of aluminum is 0.22 cal/g C.
2. Calculate the heat lost by ten grams of copper if it is cooled from 35 to 21 degrees Celsius? The specific heat of copper is 0.09 cal/g C.
3. Calculate the heat gained by 7 grams of lead heated from 0 to 45 degrees Celsius? The specific heat of the lead is 0.03 cal/g C.
4. Calculate the heat lost by 20 grams of brass if it is cooled from 64 to 32 degrees Celsius? The specific heat of brass is 0.09 cal/g C.
5. Calculate the heat gained by ocean water if it is heated from 45 to 95 degrees Celsius. The specific heat of ocean water is 0.93 cal/g C.

Convert the following to Celsius using the formula $C = 5/9(F - 32)$:

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|----------|----------|----------|----------|
| 1. 212 F | 5. 232 F | 9. 456 F | 13. 56 F |
| 2. 32 F | 6. 211 F | 10. 21 F | 14. 44 F |
| 3. 48 F | 7. 234 F | 11. 68 F | 15. 82 F |
| 4. 46 F | 8. 26 F | 12. 74 F | 16. 95 F |

Convert the following to Fahrenheit using the following formula:

$$F = 9/5 C + 32$$

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|----------|----------|----------|-----------|
| 1. 100 C | 5. 12 C | 9. 122 C | 13. 555 C |
| 2. 0 C | 6. 22 C | 10. 77 C | 14. 34 C |
| 3. 5 C | 7. 78 C | 11. 63 C | 15. 87 C |
| 4. 10 C | 8. 123 C | 12. 42 C | 16. 222 C |