+ WS 7.1   Specific Heat & Calorimetry

Show all work neatly.....

$$q = m\,c\,\Delta T$$

Specific Heats	
substance	c (J/g°C)
water	4.184
ethanol	2.452
graphite	0.720
diamond	0.502
iron	0.444
copper	0.385
silver	0.237
gold	0.129
ice	2.092

1. How much heat is required to raise the temp of 654 g of water from 34.5°C to 89.7°C?

   Ans _____

2. How much heat is required to raise the temp of 654 g of silver from 34.5°C to 89.7°C?

   Ans _____

3. If 7350 J were added to 152 g of ethanol, its temp would go up by how much?

   Ans _____

4. 16.25 g of water at 54.0°C releases 402.7 J. What will be its final temp?

   hint: it's cooling down, so the final temperature will be *less than* 54.0°C

   Ans _____

5. 697 J are added to a 36.8 g of kerosene and the temp increases from 22.5°C to 34.7°C. Determine kerosene's specific heat.

   Ans _____

6. 25 copper pennies (each weighing 3.12 g) are placed in 36.0 g of ethanol at room temp (22.1°C). How much heat will it take to raise the temperature up to 65.8°C?

   hint: Calculate *q* for the copper & *q* for the ethanol separately. Then add your 2 answers together

   Ans _____

7. What mass of 54.0°C water must be added to 468 g of 21.0°C water to make the final temp of both come out to be 29.0°C?

   Ans _____

8. What mass of 54.0°C gold must be added to 468 g of 21.0°C water to make the final temp of both come out to be 29.0°C?

   Ans _____

9. A 325 g brass rod at 100.0°C is placed in a cup containing 162 g of 24.3°C water. The final temp comes out to be 37.4°C. Determine brass's specific heat.

   Ans _____

10. 100.0 g of water at 20.0°C are mixed with 200.0 g of copper at 40.0°C. What will the final temp come out to be?

    Ans _____

Ans (IRO+1): 0.436   1.55   19.7   23.1   29.5   48.1   150   4860   5170   8560   151,000   **units** (IRO+1): J   J   J   °C   °C   °C   °C   g   g   J/g°C   J/g°C