Heat Transfer Practice

1) When a 200.0 g, 100.0°C piece of metal was dropped into a cup containing 150.0 ml of 20.0°C water. The temperature of the water rose to 22.0°C. What is the specific heat of the metal? Evaluate using significant figures.

Hor LESS Hor.

metal water

$$m = 200.09$$
 $m = 150.09$
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2) A hot poker is made of tin (0.228 J/g°C), it has a mass of 2.5 kg. In order to lose some heat it is placed in 1500 mL of water, which has a temperature of 15°C, the final temperature reaches 19°C. What was the initial temperature of 15°C, the final temperature of 15°C.

3.1°C

3. A hot metal is placed in 100.0 mL, of 25.0°C water. The initial temperature of the metal is 95.0°C and it reaches a final temperature of 27°C. The specific heat of the metal is 0.454 J/g°C. What is the mass of the metal?

Hot LESS Hot metal water

$$\frac{metal}{m=?}$$
 water

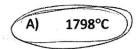
 $m = 100.09$
 $c = 0.454J$
 $\Delta T = T_f - T_i$
 $\Delta T = 2°c$
 $\Delta T = 2°c$
 $C = 4.19J$
 $C = 4.19J$

4. Platinum-gold alloys are often used in the production of fine jewellery. The alloys are 90% by mass platinum and 10% by mass gold (how to deal with this in problem: make up any numbers for mass that have the same ratio ex. 90 g for platinum and 10 g for gold). During the fabrication of the alloy, the two metals are heated separately to a temperature that exceeds their melting points by 100.0°C and are then mixed.

Consider the following information and assume that no heat is lost to the surroundings.

Property	Platinum	Gold
Melting point (°C)	1768	1064
Specific heat capacity (J/g•°C)	0.1300	0.1300

What is the final temperature of the mixture?



B) 1698°C

*We expect the final temp to be closer to that of platinum because they have the Same heat capacity and platinum has the larger mass in the

D) 1416°C

Platinum Gold 7 Cancel Specific heat

$$-Q = Q$$

(-9a) (0.1360T) $\Delta T = (19)(0.1360T) \Delta T$
 $-\frac{q}{9} \Delta T = \sqrt{4} \Delta T$
 $-\frac{q}{9} \Delta T = \Delta T$
 $-\frac{q}{19} \Delta T = \Delta T$
 $-\frac{q}{19} (T_f - 1868°C) = T_f - 1164°C$
 $-\frac{17976}{10} = \frac{107f}{10}$
 $T_f = 1797.6°C$