

Directions: Answer the following question(s).

1 Solid magnesium has a specific heat of $1.01 \text{ J/g}^\circ\text{C}$. How much heat is given off by a 20.0 gram sample of magnesium when it cools from 70.0°C to 50.0°C ?

- A. 202 J
- B. 404 J
- C. 808 J
- D. 1010 J

2 If the heat of fusion of water is 80 cal/g , the amount of heat energy required to change 15.0 grams of ice at 0°C to 15.0 grams of water at 0°C is -

- A. 80 cal
- B. 560 cal
- C. 1200 cal
- D. 2400 cal

3 The specific heat of aluminum is $0.900 \frac{\text{J}}{\text{g} \cdot ^\circ\text{C}}$. How much heat is required to raise the temperature of a 30.0 g block of aluminum from 25.0°C to 75.0°C ?

- A. 0.540 J
- B. 1.50 J
- C. 1350 J
- D. 1670 J

4 The table shows the specific heat capacity of four substances.

Substance	Heat Capacity $\frac{\text{J}}{\text{g} \cdot ^\circ\text{C}}$
Aluminum	0.900
Glass	0.50
Carbon dioxide	0.843
Water	4.18

For an equal mass of each substance, which one will require the *least* amount of heat to raise its temperature from 20°C to 30°C ?

- A. Aluminum
- B. Glass
- C. Carbon dioxide
- D. Water

Directions: Answer the following question(s).

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**Molar Heat of Fusion and
Melting Point for Selected Substances**

Substance	Melting Point (°C)	ΔH_{fus} (kJ/mol)
Argon	-190	1.18
Benzene	5.5	9.87
Mercury	-39	2.29
Water	0	6.01

Which substance will release the greatest amount of heat when 1.00 mol is frozen?

- A. Argon
- B. Benzene
- C. Mercury
- D. Water