Heat of Fusion

New Regents original practice • Name: _____ Date: _____
Show your work for written answers.

Use q = mHf for melting at the melting point. For the ice in this worksheet, Hf = 334 J/g.

1 How much heat melts 10.0 g of ice at 0 °C to liquid water at 0 °C?

(1) 33.4 J

(2) 334 J

(3) 3,340 J

(4) 33,400 J

2 For an ice sample that melts, explain why q for the sample is positive. [1]

Answer and work

_____

_____

3 A sample at its melting point absorbs 1,670 J of heat entirely as it melts. What mass of ice melts? [1]

Answer and work

_____

_____

4 Which equation models a temperature increase while a substance remains solid?

(1) q = mHf

(2) q = mHv

(3) q = mcΔT

(4) $P_1V_1 = P_2V_2$

Melting Ice in a Model

Use the information below to answer the questions.

A heater supplies the indicated energy to each pure ice sample with negligible loss. All samples begin at 0 °C. A sample remains at 0 °C while ice and liquid water coexist.

Sample	Ice mass (g)	Energy supplied (J)
P	20.0	3,340
Q	20.0	6,680
R	10.0	6,680

5 Which sample still contains ice after receiving its listed energy?

(1) P only
(2) Q only
(3) R only
(4) All three

6 Calculate how many grams of ice melt in P. Use its supplied energy and the heat of fusion. [1]

Answer and work

7 Which sample just finishes melting with no energy left to warm the liquid?

(1) P
(2) Q
(3) R
(4) None

8 Explain why the final liquid in R can be warmer than 0 °C. Refer to its melting requirement. [1]

Answer and work