CH 23: 53, 54, 55
CH 24: #1-25, 46, 49, 51, 52, 55, 57

CH 23

★ 53. $c_{ICE} = 0.48 \frac{cal}{g°C}$

a. $-273\,K \rightarrow 373\,K$ BOILING H_2O

$m = 1g$

i. $-273 \rightarrow 0°C$

$Q_i = mc\Delta T$

$= (1g)\left(0.48 \frac{cal}{g°C}\right)(273°C)$

$Q_i = 131\ cal$

ii. $1g\ ice \rightarrow 1g\ water$

$Q_{ii} = 1g \cdot 80 \frac{cal}{g}$

$Q_{ii} = 80\ cal$

iii. $273\,K \Rightarrow 373\,K$

$Q_{iii} = (1g)\left(1 \frac{cal}{g°C}\right)(100°C)$

$= 100\ cal$

$Q_i + Q_{ii} + Q_{iii} = Q_{TOT}$

$Q_{TOT} = 131\ cal + 80\ cal + 100\ cal$

$\boxed{Q_{TOT} = 311\ cal}$

b. WATER ⇒ STEAM

$Q = (1g)\left(540 \frac{cal}{g}\right)$

$\boxed{Q = 540\ cal \text{ WHICH IS} > 311\ CAL}$