

5. It takes 540 calories of heat to convert one gram of water to steam at  $100^{\circ}\text{C}$ , because the latent heat of vaporization for water is  $L_v = 540 \text{ cal / gm}$ . Thus the amount of heat required to boil 300 grams of water is

$$Q = L_v m$$

$$Q = (540 \text{ cal / gm}) (300 \text{ gm}) = 162,000 \text{ cal}$$