

7. (a) This may be considered a reversible process (as well as isothermal), so we use  $\Delta S = Q/T$  where  $Q = Lm$  with  $L = 333 \text{ J/g}$  from Table 19-4. Consequently,

$$\Delta S = \frac{(333 \text{ J/g})(12.0 \text{ g})}{273 \text{ K}} = 14.6 \text{ J/K} .$$

- (b) The situation is similar to that described in part (a), except with  $L = 2256 \text{ J/g}$ ,  $m = 5.00 \text{ g}$ , and  $T = 373 \text{ K}$ . We therefore find  $\Delta S = 30.2 \text{ J/K}$ .