

$$\textcircled{1} \quad q = m s \Delta T$$

$$q = (5.00 \text{ g})(\overset{.449}{\cancel{4.184}})(100 - 20) = \boxed{180 \text{ J}}$$

$$\textcircled{2} \quad q = (100)(.449)(35 - 150) = -5163.5 \text{ J} \times \frac{1 \text{ cal}}{4.184 \text{ J}} \times \frac{1 \text{ kcal}}{1000 \text{ cal}} =$$

$$-1.234 \text{ kcal}$$

$$\textcircled{3} \quad \begin{array}{r} +3470 \\ -3.47 = (75.0)(4.184)(x - 20) \\ +3470 = 313.8x - 6276 \\ +6276 \qquad \qquad \qquad +6276 \\ \hline \cancel{9746} = 313.8x \\ 9746 \\ x = 31.1^\circ \text{C} \end{array}$$

$$\textcircled{4} \quad -ms\Delta T = ms\Delta T$$

$$(-45) \text{ s} (\overset{34.4}{\cancel{100}} - 100) = 100(4.184)(\overset{34.4}{\cancel{100}} - 25.3)$$

$$29525 = \cancel{2254918}$$

$$3807.44$$

$$s = 1.29$$

$$\textcircled{5} \quad (17.9 \text{ g}) s (23.98 - 48.31) = (28.05)(4.184)(23.98 - 21.04)$$

$$435.507 \text{ s} = 345.04$$

$$s = .792 \text{ J/g}^\circ \text{C}$$