	Section(s)	WORK	answer
What is the energy gained in the H$_2$O when you melt 326 g of ice into liquid?	② melting ice	$Q = mL_{fus}$ $Q = (326)(333)$ $Q = 108,558J$	$Q = +108,558J$
What is the energy absorbed when you heat 326 grams of water from 0°C to 100°C?	③ heating liquid	$Q = mC\Delta T$ $Q = (326)(4.18)(100-0°)$ $Q = 136,268$	$Q = ^+136,268$
What is the energy needed to melt 326 grams of ice and heat it to 100 °C?	② melting + ③ heating	$Q_2 = mL_{fus.}$ $= (326)(333) = ^+108,558$ $Q_3 = mC\Delta T$ $= (326)(4.18)(100-0) = ^+136,268$	$Q = Q_2 +$ $=$ $^+244,82$ J
Determine the energy required to convert 21.1 grams of ice at -6°C to steam at 100°C	① + ② + ③ +④ warming ice melting, warming water, boiling	$Q_1 = mC\Delta T = (21.1)(2.09)(0-^-6) = 264.6$ $Q_2 = mL = (21.1)(333) = 7026.3$ $Q_3 = mC\Delta T = (21.1)(4.18)(100-0) = 8819.8$ $Q_4 = mL = (21.1)(2240) = 47264$ $Q_1+Q_2+Q_3+Q_4 =$	$^+63,434.7 J$
What is the heat required to convert 51 grams of ice at -20.3°C to water at 0°C?	① + ② warm ice and melt	$Q_1 = (51)(2.09)(0-^-20.3) = 2163.8$ $Q_2 = (51)(333) = 16983$ $Q_1 + Q_2 =$	$+19146.8J$
What is the energy absorbed when you melt 75 grams of ice at -5°C to steam at 150°C?	① + ② + ③ + ④ + ⑤	$Q_1 = (75)(2.09)(0-^-5) = 783.8$ $Q_2 = (75)(333) = 24975$ $Q_3 = (75)(4.18)(100-0) = 31350$ $Q_4 = (75)(2240) = 168000$ $Q_5 = (75)(1.87)(150-100) = 7012.5$ $Q_1 + Q_2 + Q_3 + Q_4 + Q_5 =$	$^+232,121.3$