Homework - Worksheet

$$2C_2H_{6(g)} + 7O_{2(g)} \longrightarrow 4CO_{2(g)} + 6H_2O_{(g)} + 2502kJ$$

Step 1: H_r (general)

$$\Delta H_r = nH_r$$

$$H_r = \frac{\Delta H_r}{n} = \frac{-2502\,kJ}{4\,mol} = -625.5\,kJ/mol$$ ✓

Step 2: n (specific)

$$\Delta H_r = nH_r$$

$$-1500\,kJ = n\left(-625.5\,\frac{kJ}{mol}\right)$$

$$n = \frac{-1500\,kJ}{-625.5\,kJ/mol}$$

$$n = 2.398\,mol$$

Step 3: m (specific)

$$2.398\,\text{mol}\,CO_2 \times \frac{44.01\,g\,CO_2}{1\,\text{mol}\,CO_2} = \boxed{105.5\,g}$$

Multi-Step Energy Calculations Worksheet