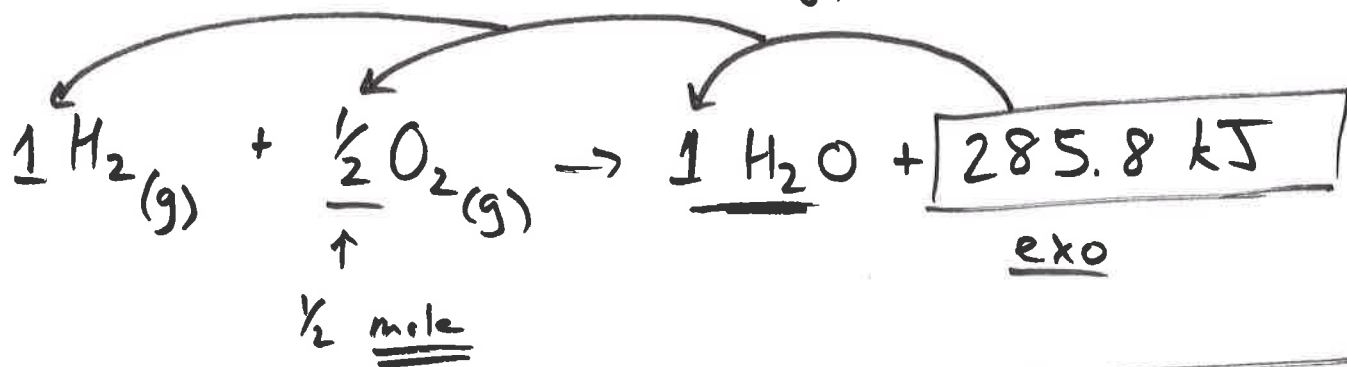


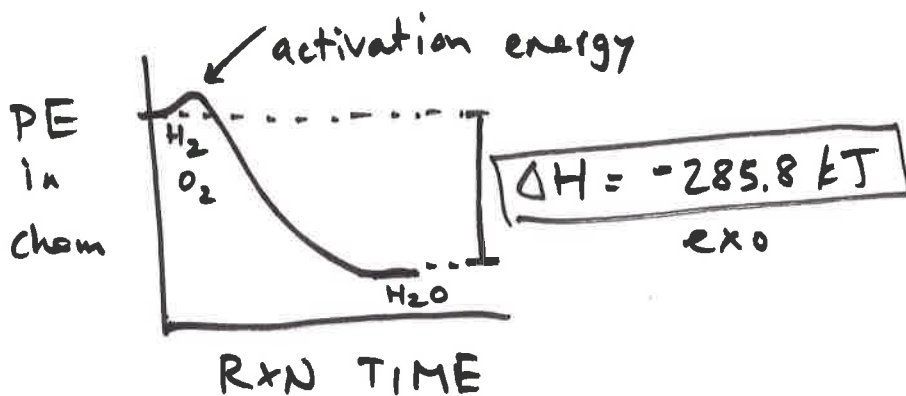
# 2/2/15 Heat of Reaction ( $\Delta H_R$ )

## Exothermic

- heat is released
- products are more stable, have less potential energy than reactants

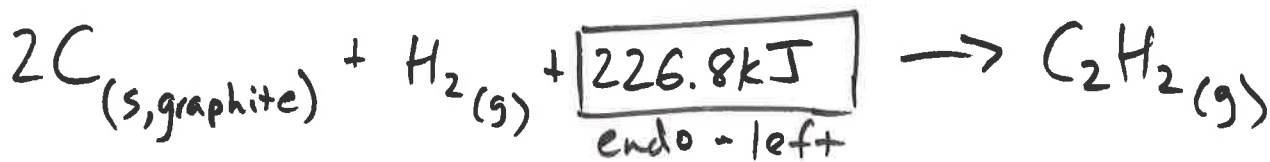


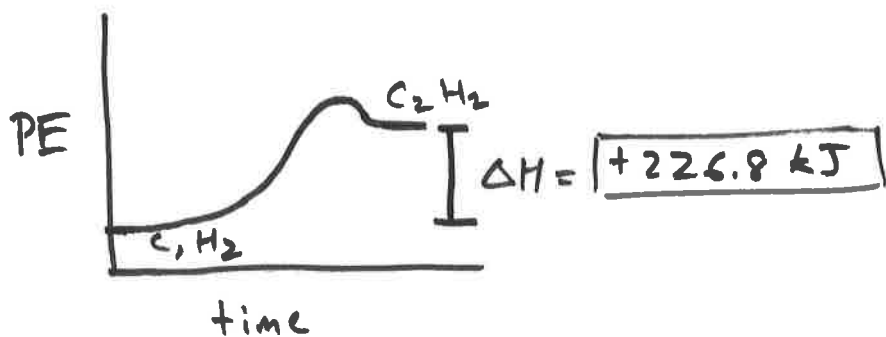
$$\boxed{285.8 \text{ kJ} \times 2}$$



## Endothermic

- heat absorbed into products
- products have more PE





You need 500. kJ of energy, how many moles of  $\text{O}_2$  do you need?

$$500. \text{ kJ} \left( \frac{0.5 \text{ mol O}_2}{285.8 \text{ kJ}} \right) = \boxed{0.875 \text{ mol O}_2}$$

Forming 2.00 g of  $\text{C}_2\text{H}_2$  requires       ? kJ.

$$2.00 \text{ g C}_2\text{H}_2 \left( \frac{1 \text{ mol C}_2\text{H}_2}{26.04 \text{ g}} \right) \left( \frac{226.8 \text{ kJ}}{1 \text{ mol C}_2\text{H}_2} \right) = \boxed{17.4 \text{ kJ}}$$

17.419

$$1.72 \times 10^{23} \text{ atoms C} \left( \frac{1 \text{ mol C}}{6.02 \times 10^{23} \text{ atoms}} \right) \left( \frac{226.8 \text{ kJ}}{2 \text{ mol C}} \right) = \boxed{32.4 \text{ kJ}}$$

