

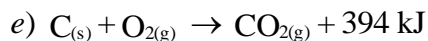
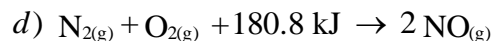
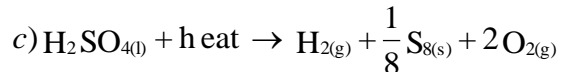
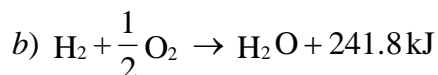
STE: Exo and Endothermic Reactions (on website, scroll down for answers)

1. A student dissolved 1 g of each of four substances in water in a laboratory experiment. The following table illustrates the change in temperature after the solids dissolved.

SUBSTANCES	T_{initial}	T_{final}
NH ₄ Cl	23°C	19°C
NaOH	23°C	60°C
NaCl	23°C	23°C
Drano	23°C	60°C

Which of the above represent exothermic reactions?

2. Endothermic? Or Exothermic?



3. Which of the following are **endothermic** changes?

- a) Melting ice
- b) A burning candle
- c) Dew forming on a lawn
- d) Moth balls undergoing sublimation
- e) Iron rusting
- f) Water decomposing by electrolysis

4. Given: $\text{N}_{2(g)} + \text{O}_{2(g)} + 180.8 \text{ kJ} \rightarrow 2\text{NO}_{(g)}$

How much energy would be absorbed if only 7.00 grams of nitrogen was oxidized?

5. Give two examples of an oxidation reaction that does not involve oxygen.

Answers:

- | | |
|--------------------|---|
| NH ₄ Cl | endo (temperature decreased) |
| NaOH | exo |
| NaCl | neither (in reality, it's just slightly endothermic) |
| Drano | mucho exo |

- | | |
|-----|------|
| (a) | exo |
| (b) | exo |
| (c) | endo |
| (d) | endo |
| (e) | exo |

- A, d and f

- 7.00 g of N₂(mole/28.0 g) = 0.25 moles

180.8 kJ/(1 mole of N₂) * 0.25 moles = 90.4 kJ would be absorbed

- | | |
|--|---|
| Cl ₂ + 2 Na → 2 NaCl | each chlorine is taking an electron from sodium |
| Br ₂ + Ca → CaBr ₂ | bromine is taking electrons from calcium |