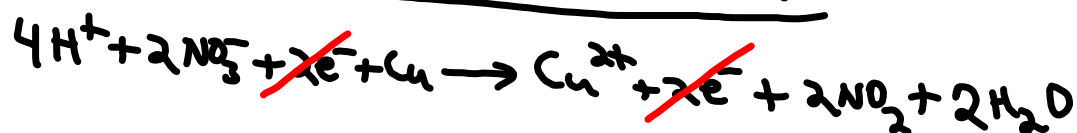
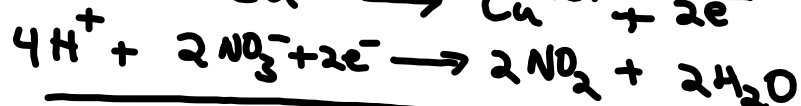
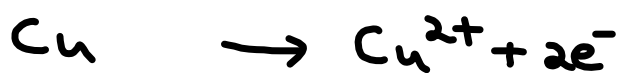
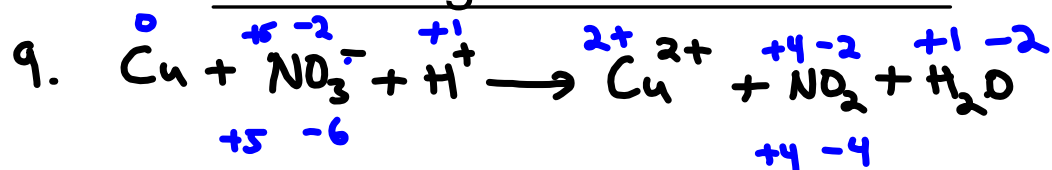
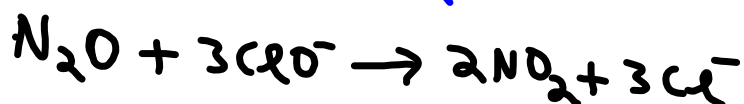
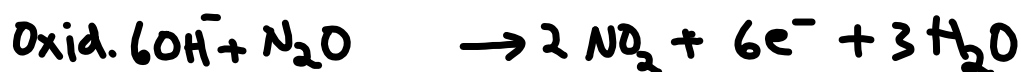
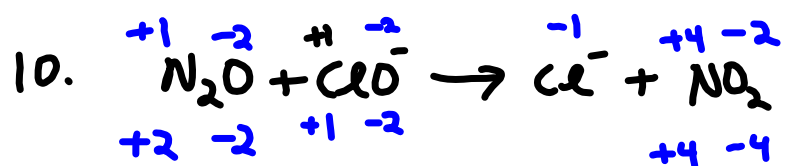
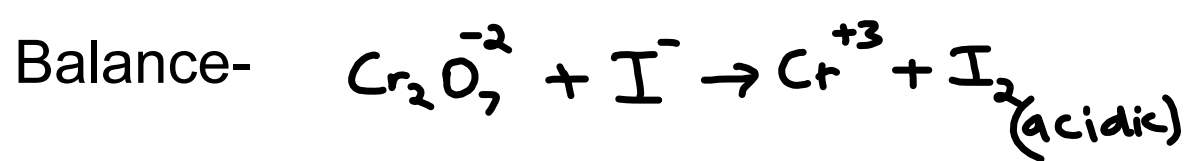


Balancing Redox Reactions







Faraday's Laws-Stoichiometry

The amount of product of an electrolysis reaction depends on -

1. Mass
2. Time
3. Electrical current

Definitions -

$$1 \text{ Coulomb (charge)} = 1 \text{ Ampère (current)} \times 1 \text{ sec.}$$

$$\text{Faraday's Constant } 1 \text{ mole } e^- = 96500 \text{ Coul.}$$

Example- What mass of Cu(s) is deposited on a cathode dipped in $\text{CuSO}_4(\text{aq})$ by a 5.0 A current for 30 min?

$$a) \quad 30 \text{ min} \times \frac{60 \text{ s}}{1 \text{ min}} = 1800 \text{ s}$$

$$b) \quad 5.0 \text{ A} \times 1800 \text{ s} = 9000 \text{ C.}$$

$$c) \quad 9000 \cancel{\text{ C}} \times \frac{1 \text{ mole } e^-}{96500 \cancel{\text{ C}}} = 0.093 \text{ mole } e^-$$

Faraday's Constant \rightarrow



$$e) \quad 0.093 \cancel{\text{ mol } e^-} \times \frac{1 \text{ mol Cu}}{2 \cancel{\text{ mole } e^-}} = 0.047 \text{ mol Cu}$$

$$f) \quad 0.047 \cancel{\text{ mol Cu}} \times \frac{63.55 \text{ g Cu}}{1 \cancel{\text{ mol Cu}}} = 3.0 \text{ g Cu}$$

periodic table \rightarrow

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