Stoichiometry of Cell Reactions

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A student wishes to set up an electrolytic cell to plate copper onto a belt buckle. Predict the length of time it will take to plate out 2.5 g of copper from a copper(II) nitrate solution using a 2.5 A current. At which electrode should the buckle be attached?

2. Determine the mass of chlorine produced when a 200 A current flows for 24.0 h through a cell containing molten sodium chloride (a Downs cell). At which electrode is the chlorine produced?

3. How long would it take a 500 A current to produce 1.00 kg of aluminium from aluminium oxide dissolved in molten cryolite (Hall–Héroult cell)?

4. A trophy company is setting up a nickel-plating cell using an electrolyte containing nickel(II) ions. Predict the current required to produce nickel metal at the rate of 5.00 g/min.



