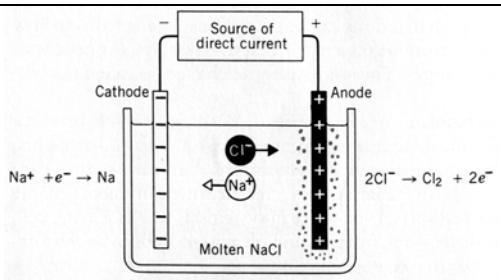
How are oxidation and reduction related to changes in oxidation #?	Oxidation is an increase in oxidation number, reduction is a decrease in oxidation number.
In the reaction $H_2 + Cl_2 \rightarrow 2HCl$ which element is oxidized, which is reduced?	$\overset{0}{H_2} + \overset{0}{Cl_2} \rightarrow \overset{+1\ -1}{2HCl}$ H is oxidized (increase in oxidation number) Cl is reduced (decrease in oxidation number)
See class handout for example of balancing equations using oxidation numbers (or see pg. 451-3)	

17.1, 17.2

Define electrochemistry.	The study of chemical changes that are caused by or that produce electricity.
What must a solution that conducts electricity contain?	Ions. For example, NaCl will conduct electricity when in water or when melted because, in these conditions, Na^+ and Cl^- come apart. However, solid NaCl cannot conduct electricity.
What are the two types of electrochemical systems/cells called? How are they different?	Electrolytic and Galvanic. The chemicals in electrolytic cells are forced to react by passing a current through them. The chemicals in galvanic cells react spontaneously and can be harnessed to produce electricity. In other words: electrolytic cells consume electricity, galvanic cells produce electricity.
What are the electrodes/poles in an electrochemical cell called?	Anode and Cathode.
>How are these defined?	Anode: where oxidation occurs Cathode: where reduction occurs (remember red cat)
What is the significance of labeling electrodes as positive or negative?	Electrons always flow from the negative electrode (excess negative charge) to the positive electrode (less negative charge).
What is a 'half-reaction'?	A *hypothetical* reaction showing the gain or loss of electrons from either the oxidation or the reduction part of a redox equation.
Write the half-reaction for the reduction of Na^+.	$Na^+ + e^- \rightarrow Na$ (gain of electrons is reduction).
Diagram the electrolysis of NaCl. Indicate half-reactions.	
Why is molten NaCl but not aqueous NaCl used in electrolysis?	When a salt is mixed with water, the products of electrolysis are difficult to predict. A reaction with the water (to produce H_2 and/or O_2) may occur instead of a reaction with the salt ions.
What is a cell reaction?	The addition of two half-reactions (note: when adding half-reactions to get a cell reaction, electrons must cancel).
Explain why the cathode is negative in electrolytic cells.	The negative pole has excess electrons forced onto it by the source of current. These electrons can only be removed by (i.e. gained by) positive ions. Gain of electrons is reduction (GER).

17.5

How are galvanic cells different from electrolytic cells (3 ways)?	Galvanic cells	Electrolytic cells
	Produce electricity	Require electricity
	Anode (–), Cathode (+)	Anode (+), Cathode (–)
	Certain chemicals are separated	All chemicals in same container