Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Homework Assignment #1 - Cellular Respiration (5 pts)**

Write the chemical equation for cellular respiration below.

What is the purpose of cellular respiration?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What does ATP stand for? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What does ADP stand for? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

When a phosphate molecule is added to an ADP to form ATP energy is \_\_\_\_\_\_\_\_\_\_\_\_. When a phosphate molecule is released from ATP to for ADP, energy is \_\_\_\_\_\_\_\_\_\_\_\_\_.

**Fill in the name of the four main steps in the cellular respiration process and their locations in spaces below.**

Name of Step Location

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Use your lecture handout and textbook to fill in the blanks with the correct terms or numbers.**

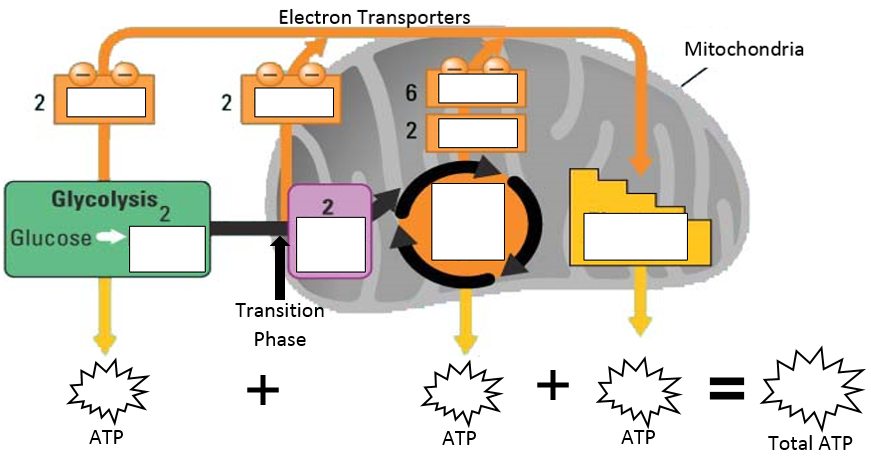
The first stage of cellular respiration is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, where one \_\_\_\_\_\_\_\_\_\_\_ molecule is broken down into two \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecules, resulting in the net gain of \_\_\_ ATP.

The second stage of cellular respiration is known as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ phase, and pyruvate is combined with coenzyme A to form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Two \_\_\_\_\_\_\_\_\_\_ molecules and carbon dioxide are the products of this second stage of the cellular respiration process.

The third stage of cellular respiration is known as the \_\_\_\_\_\_\_\_ cycle. The breakdown of one glucose molecule results in two cycles, which yields \_\_\_\_\_ carbon dioxide molecules, \_\_\_\_\_\_ NADH molecules, \_\_\_\_\_ ATP, and \_\_\_\_\_ FADH2 molecules.

The last stage of the cellular respiration process is made up of two parts, the \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ chain and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. In this last stage, \_\_\_\_\_\_\_\_\_\_\_ are released from NADH and FADH2 and power the active transport of hydrogen ions against their concentration and electrical gradients. The hydrogen ions then fall down their electrochemical gradient through a specialized enzyme known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, which uses the energy from the falling hydrogens to attach a phosphate group to \_\_\_\_\_\_\_ to form ATP.

Fill in the products of each step or the name of the missing step in the cellular respiration process. Write the number of ATP produced by each step of cellular respiration in the below each step.



For letters A through H, fill in the name of the processes, molecule or enzyme.

**A. B.**

