Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_

**Inductive Reactance**

**Assignment # 4- Compute the Q of Inductors**

1. State the formula for computing Q.

Q = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Two inductors have the same value of L, but one has more resistance in its windings than the other. Does the one with the most resistance have the higher or lower Q?
2. Select true statements regarding the Q of inductors by placing an “X” in the appropriate blanks.

\_\_\_\_\_ a. All inductors have some resistance.

\_\_\_\_\_ b. High Q coils usually have relatively little resistance.

\_\_\_\_\_ c. In general, high Q coils have greater energy storage ability than do low Q coils.

\_\_\_\_\_ d. Since Q equals XL divided by RS, an inductor having a Q of “100” means that it

has 100 ohms.

1. A coil is measured with a DC ohmmeter as having 0.5 ohms resistance. If the coil has an XL of 300 ohms, the Q is \_\_\_\_\_\_\_\_\_\_\_\_.
2. Will increasing the angular velocity slightly increase or decrease the Q of the coil?
3. An inductor has an internal resistance of ½ ohm and is rated at 500 mH. If 10 volts at 60 hertz is applied, the Q of the inductor is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.