Math 172 – Quiz #1

October 4, 2013 **Name:** _____
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Total: 40 points

Part A: For these short-answer questions, it is not necessary to show any work. Place your final answer in the space provided. Each answer is worth one point.

1. List **all** of the sets (R, Q, I, N, W, and Z) that the following numbers belong to.

   a) -7 _____

   b) 0.7 _____

   c) -0.7 _____

   d) $\sqrt{7}$ _____

   e) $\frac{1}{7}$ _____

2. Given A = {0}, B = {2,4,6}, C = {x | x is a positive integer}, find:

   a) $A \cap B$ _____

   b) $A \cup C$ _____

   c) $A \cup (B \cap C)$ _____

   d) $\varnothing \cup (C \cup N)$ _____

3. Determine whether each of the following statements is True or False:

   a) $\sqrt{2} \in R$ _____

   b) $W \subseteq N$ _____

   c) $Q \cap I = R$ _____

   d) $\varnothing \cup W = W$ _____

   e) $\{-3\} \subseteq Z$ _____

4. State whether the following equations are true or false for all real numbers:

   a) $-(4-y)=y-4$ _____

   b) $(a+b)^2=a^2+b^2$ _____

   c) $x-(y-z)=(x-y)-z$ _____

   d) $\dfrac{k+5}{k}=5$ _____

5. Write each union or intersection as a single interval, if possible. If it can't be written as a single interval, write the original interval in the space provided. If the answer is the empty set, say so.

   a) $[-4,1)\cap[0,\infty)$ _____

   b) $[-4,1)\cap[2,\infty)$ _____

Part B: For these questions, show your work and place your final answer in the space provided. Each answer is worth 2 points.

6. Evaluate each of the following expressions. Reduce any fractions to lowest terms.

   a) $-20\div\left(-\dfrac{5}{4}\right)+18\div\sqrt{4}$ _____

   b) $(4-1)^3-\sqrt{10^2-8^2}$ _____

c) $\dfrac{12-2\times 4}{12-(-8)}$ _____

d) $24 \div \dfrac{4}{3} \times (-10) \div \dfrac{1}{2} \div (-3)$ _____

e) $-40(0.2)-(0.8)(0.1)$ _____

f) $-3^2 \div \left(\dfrac{1}{3^2}\right) + 33 \div 1.1$ _____

g) $\sqrt{b^2 - 4ac}$, where b and c are equal to -1 and a equals 12 _____

7. Simplify the following algebraic expressions. You may leave your answer in decimal form.

a) $\dfrac{24-36m}{-6}-\dfrac{48m-60}{-12}$ _____

b) $12y(1+2x)-8x(3y-x)$ _____

c) $0.2(25p-5q)-10(0.5q-p)$ _____