MCS 220: Week 5 Quiz 5 Name: ________________________

Tuesday, 7 March 2017

1. The contrapositive of the definition in our textbook is as follows. A function $f : A \to B$ is called *injective* iff, for every x_1 and x_2 in A, $x_1 \neq x_2$ implies $f(x_1) \neq f(x_2)$. ☐

   Please negate the above condition. A function $f : A \to B$ is *not injective* iff,

   there exist ________________ such that ____

2. According to the definition in our textbook, a relation $\mathbf{R}$ on a set S has the symmetric property iff, ☐

   for all $a, b \in S$, ____.

3. Following to the above definition, a relation $\mathbf{R}$ on a set S does *not* have the symmetric property iff, ☐

   ____________________ such that ______________________________________

   ____.

4. Define a relation $\mathbf{R}$ on the set of all integers $\mathbb{Z}$ by $a\mathbf{R}b$ iff $a - b = 4k$ for some integer k. You have shown that $\mathbf{R}$ is in fact an equivalence relation. Describe the equivalence class which contains 5: ☐

   $E_5 = \{$______________ : __________________________$\}$