MCS 220: Week 5 Quiz 5 Name: ____________________

Tuesday, 7 March 2017

1. According the definition in our textbook, a function $f : A \to B$ is called *injective* iff, for every x_1 and x_2 in A, $f(x_1) = f(x_2)$ implies $x_1 = x_2$. ☐

   According to this definition, a function $f : A \to B$ is *not injective* iff, there exist …

   ____

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

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

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

   ____________________ such that ______________________________________

   ____.

4. Define a relation $\mathbf{R}$ on the set of all integers $\mathbb{Z}$ by $a\mathbf{R}b$ iff $x - y = 2k$ for some integer k. You have shown that $\mathbf{R}$ is in fact an equivalence relation. Describe the equivalence class which contains 5: ☐

$$E_5 = \{\underline{\hspace{3cm}} : \underline{\hspace{5cm}}\}$$