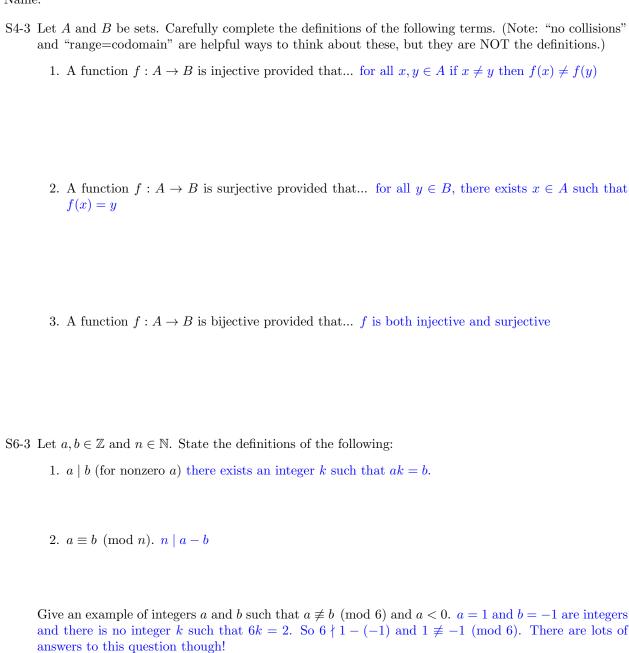
Skill Mastery Quiz 12

Communicating in Math (MTH 210-01) Winter 2020

Name:



S5-2 For all $a,b\in\mathbb{Z}$ say $a\sim b$ if and only if |a-b|<10. Is \sim an equivalence relation? Explain. This is not an equivalence relation. To justify you only have to explain one of not being reflexive, symmetric, or transitive. It turns out this reflection is reflexive and symmetric (because for all $a\in\mathbb{Z}$, |a-a|=0<10 and if $a,b\in\mathbb{Z}$ then |a-b|=|b-a|, so if |a-b|<10 then |b-a|<10 as well). However, this relation is not transitive, since 0, 9, and 18 are all integers, and |0-9|<10, |9-18|<10, but $|0-18|\geq 10$.