Skill Mastery Quiz 12

Communicating in Math (MTH 210-01)
Winter 2020

Name:

S4-3 Let A and B be sets. Carefully complete the definitions of the following terms. (Note: "no collisions" and "range=codomain" are helpful ways to think about these, but they are NOT the definitions.)

1. A function $f : A \to B$ is injective provided that...

2. A function $f : A \to B$ is surjective provided that...

3. A function $f : A \to B$ is bijective provided that...

S6-3 Let $a, b \in \mathbb{Z}$ and $n \in \mathbb{N}$. State the definitions of the following:

1. $a \mid b$ (for nonzero a)

2. $a \equiv b \pmod{n}$.

Give an example of integers a and b such that $a \not\equiv b \pmod{6}$ and $a < 0$.

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.