

18.099: Problem Set 1

Due: Wednesday, September 10.

1. Let n be a positive integer. Show that

$$1 + 2 + 3 + \cdots + n = \frac{n(n+1)}{2}.$$

2. Let $f: A \rightarrow B$ and $g: B \rightarrow C$ be maps between sets, and suppose that the composition $g \circ f: A \rightarrow C$ is a bijection. Does it follow that f is injective, surjective, or bijective? Same question for g .