

Math 160 Logic Assignment # 11

For each of the following, A, B, C are sets and $f : A \rightarrow B$ and $g : B \rightarrow C$.
Prove the following:

1. If f and g are injective then $g \circ f$ is injective.
2. If $g \circ f$ is injective then f is injective.
3. If $g \circ f$ is surjective then g is surjective.
4. If $g \circ f$ is injective and f is surjective then g is injective.
5. If $g \circ f$ is surjective and g is injective then f is surjective.