

Name:

1] Please complete the following definition: we say that a function $f: X \rightarrow Y$ is *injective* if

2] Let $X, Y,$ and Z be sets, and let $f: X \rightarrow Y$ and $g: Y \rightarrow Z$ be functions.

Are the following statements true or false? Please circle your answers.

A] If both $f: X \rightarrow Y$ and $g: Y \rightarrow Z$ are injective, then $g \circ f: X \rightarrow Z$ must be injective. TRUE | FALSE

B] If $g \circ f: X \rightarrow Z$ is injective, then both $f: X \rightarrow Y$ and $g: Y \rightarrow Z$ must be injective... TRUE | FALSE

C] If $g \circ f: X \rightarrow Z$ is injective, then $f: X \rightarrow Y$ must be injective..... TRUE | FALSE

D] If $g \circ f: X \rightarrow Z$ is injective, then $g: Y \rightarrow Z$ must be injective..... TRUE | FALSE

3] Provide a complete proof for one of the questions that you answered with TRUE.