

**Math 215: Introduction to Advanced Mathematics**  
Problem Set 7

**Due: Friday October 25**

Do the following problems from the text: pg 117-118: 15, 16, 18, 19,

1) Suppose  $f : X \rightarrow Y$ ,  $g : Y \rightarrow Z$  and  $g \circ f$  is surjective.

a) Must  $f$  be surjective?

b) Must  $g$  be surjective?

Justify your answers by giving a proof or a counter-example.