Problem Set 5   Foundations   Due 3/20/2006

Each problem is worth 5 points. Clear and complete justification is required for full credit. You are welcome to discuss these problems with anyone and everyone, but must write up your own final submission without reference to any sources other than the textbook and instructor.

1. The composition of an increasing function with a decreasing function is _____.

2. The derivative of a decreasing function is _____.

3. Let $f : A \to B$, $g : B \to C$. Prove that if f and g are surjective, then $h = g \circ f$ is surjective.

4. Let $f : A \to B$, $g : B \to C$. Prove that if f and g are injective, then $h = g \circ f$ is injective.