Math 231 Spring 2003
Quiz 2 (1/28)   Name: _____

This quiz is worth 10 points and you have 10 minutes to complete it. Show all work and circle your final answers. You will be graded on the clarity of your work, so make sure I can follow your arguments.

Calculators ARE NOT allowed today.

Circle <u>ONE</u> of the following problems and solve it, for ten points.

A. (*10 pts*) Use a proof by induction to prove that the following statement is true for all positive integers n:

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

B. (*10 pts*) Use a proof by contradiction to prove that if x is irrational and r is rational, then the difference $x - r$ must be an irrational number. (Hint: At some point you will use the fact that the sum of two rational numbers is rational.)