**NAME:** _____ **Section: MW9-10**
**SID:** _____ **MW1-2**

**Stat 20 FALL 2003** **Quiz 1** **Date: Sept 17, 2003**

**Instructions**: Answer all questions. Please show all work. You have 50 minutes.

## Question 1. (*10 points*)

We have a box with 7 tickets. Each ticket is labeled with a distinct number from 1 to 7. We draw two tickets from the box. What is the probability of picking a prime on the first draw {2,3,5,7} and a divisor of 6 on the second draw {1,2,3,6}?

(a) With replacement?

(b) Without replacement?

## Question 2. (*10 points*)

Suppose a gambler plays a game. The game cost \$1 to play. She receives \$5 (her initial bet plus \$4) if she wins, receives back \$0 if she loses. The probability of winning is 0.2. Each game is independent. Suppose the game is played 10 times. What is the gambler's expected winnings? What is the standard deviation of the gambler's winnings? Would you say the game is "fair", explain why or why not?

## Question 3. (*5 points*)

Assume that $X$ and $Y$ are independent normal random variables with means 2 and 4 respectively and standard deviations 2 and 1 respectively. What is $P(X > Y)$?