Name: _____

Statistics: Review (Test 3)

1. Compute the mean and standard deviation of the following discrete random variable.

x	0	1	2	3	4
$P(x)$	3/20	3/10	1/5	1/5	3/20

2. You have an opportunity to play a dice game for \$2. You will roll two 12-sided dice (of different colors); if the sum of the numbers on the dice is exactly 17, you win \$8, and otherwise you get nothing.

   (a) Make a table to represent this game as a discrete random variable. What are the possible outcomes? What is the net value of each outcome? What is the probability of each outcome?

   (b) Compute the expected value of this game.

3. Find the area under the standard normal curve over the following intervals.

   (a) $(-0.36, 1.42)$

   (b) $(-\infty, -0.7)$

   (c) $(0.8, \infty)$

4. The *sitting knee height* of a person is the distance from the bottom of the feet to the top of the knees while sitting. Adult males have sitting knee heights which are normally distributed with mean 21.4 in and standard deviation 1.2 in; adult females have sitting knee heights which are normally distributed with mean 19.6 in and standard deviation 1.1 in.

   (a) A particular desk has a clearance of 23.5 in between the floor and the bottom of the desktop. What percentage of adult men can sit comfortably at this desk? What percentage of adult women?

   (b) We are designing a desk and wish it to be usable by all but the top 5% of men by sitting knee height. How much clearance should the desk have?

5. The head circumferences of adult women are normally distributed with mean 22.65 in and standard deviation 0.80 in.

   (a) The Hats by Leko company produces women's hats designed to fit a head circumference between 21 in and 25 in. What percentage of adult women can wear these hats?

   (b) Suppose the company decides to redesign its hats so that they will fit all adult women except the top 2.5% and the bottom 2.5% by head circumference. What range of head circumferences should be accommodated?