NAME: _____   **SID:** _____

Circle one of the following: Enrolled/Waitlisted/Other:_____

Circle your section: 101   102   103   104   105   106

Semester in which you received a C- or better in Stat 134: _____

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1. What statistics classes have you taken?

2. How familiar are you with R? (Circle one option.)

         Not at all   I have used it on occasion   Quite familiar(taken S133 or equivalent)

3. Is this class a requirement for you? Please answer yes or no.

4. Do you understand what the central limit theorem says?

5. Do you recall how Taylor expansions work (yes or no, be honest now!)

   Please answer the following questions to the best of your ability, without using any external resources. This test is mostly for yourself, to check how much you need to review. Using help defeats that purpose.

6. Let $X = i + 2$ with probability $\dfrac{|i|}{12}$, for $i = -4, -2, 1, 5$. Compute:

   (a) $E(X)$

   (b) $P(X > 2)$

   (c) $E(X^2)$

7. Let X have the Binomial distribution with parameters $n = 10$ and $p = 0.4$.

   (a) Write down, without actually computing anything, an expression for $P(X = 5)$.

   (b) What is $E(X)$?

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8. Let X and Y be independent random variables with expected value and standard deviations, respectively, $\mu_X, \mu_Y, \sigma_X, \sigma_Y$.

   Let $W = 2X - 3Y$. Fill in the blanks in terms of $\mu_X, \mu_Y, \sigma_X, \sigma_Y$.

   (a) $E(W) = $_____

   (b) $Var(W) = $_____

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9. Now suppose that X and Y have expectations and standard deviations as in the previous problem, but are **not** independent, and suppose that $Cov(X, Y) = r$. Fill in the blanks below in terms of $\mu_X, \mu_Y, \sigma_X, \sigma_Y, r$, where $W = 2X - 3Y$.

   (a) $E(W) = $_____

   (b) $Cov(X, W) = $_____

   (c) $Var(W) = $_____

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10. (a) Let X have the Uniform distribution on the interval $[1, 3]$. Sketch the density function of X.

   (b) What is $P(X > 1.5)$?

   (c) $X_1, X_2, \ldots X_{100}$ are independent random variables, all with the same distribution as X of part (a).
   Sketch (roughly) the density function of $Y = \dfrac{1}{100} \sum_{i=1}^{100} X_i$.