NAME (Please Print): Key

Statistics 111 **Quiz 1**

1. Each assignment receives a letter grade. An A+ counts as 12, an A as 11, and so forth down to an F, which counts as 0.

   6 What is the numerical value for a C+?

   To find your final grade in this class, each component is multiplied by a weight and averaged. The quiz component has 20% weight; homework and labs components each count for 10%; the three best exams have equal weight.

   1.25% There are 9 labs. You get to drop the lowest score. What is the weight (as a percentage) on one of the labs that counts?

   0.1/(9-1) = 0.0125, or 1.25%

   Suppose that your quiz grade component is 8.2, your lab component is 9.4, your homework component is 9.1, and on your first three exams you got a B (i.e., 8). What is the lowest letter grade would you need on the last exam in order to get a A- for the semester? (Cutpoints are at the halves; e.g., the lowest A+ is 11.5.)

   This is a trick question. Solve $(.2)(8.2) + (.1)(9.4) + (.1)(9.1) + (.2)(8) + (.2)(8) + (.2)x = 9.5$. So $x = (1/.15)[9.5 - (.2)(8.2) - (.1)(9.4) - (.1)(9.1) - (.4)(8)] = 14.05$. Since a A+ is only 12, there is no chance to get an A-.

10.57 2. Suppose that at the end of the semester our class had taken eight quizzes. Your grades were A+, A+, A+, A-, B, B-, C, and E, where 'E' denotes an excused absence. What is the **numerical** value of your quiz grade component of the semester grade, according to our class policy? (Remember that you are allowed two dropped quizzes and you replace excused absences by the average of *all* unexcused quiz scores.)

   The E is replaced by the average of the unexcused grades, or (1/7)(12 + 12 + 12 + 10 + 8 + 7 + 5)

= 9.4286. Then the best six scores are averaged, so the numerical value is (1/6)(12 + 12 + 12 + 10 + 9.4286 + 8) = 10.57.

3. Evaluate the integral of x^{-1} from 1 to 2. $\ln 2$ or 0.69.

4. Evaluate $\int_0^1 \int_0^y xy\,dxdy$. 1/8

3/2 5. What is the value of $\sum_{i=0}^{\infty} (1/3)^i$?

Set $A = \sum_{i=0}^{\infty} (1/3)^i$, so $A - \frac{1}{3}A = 1$, implying $A = \frac{3}{2}$.

.245 6. What is the probability that, after drawing two cards, with replacement, from a standard deck of 52 cards, you find that both are red?

You have 26/52 chances on the first draw. If successful, the chance of a second red is 25/51. Multiply these to get .24509.

5/9 7. What is the probability that, after making two rolls with a fair (six-sided) die, you find that one or both of the rolls is greater than or equal to 5?

$\mathbb{P}[A \text{ or } B] = \mathbb{P}[A] + \mathbb{P}[B] - \mathbb{P}[A \text{ and } B] = \mathbb{P}[A] + \mathbb{P}[B] - \mathbb{P}[A] * \mathbb{P}[B]$ since A and B are independent events. Thus 1/3 + 1/3 - 1/9 = 5/9.