

Math 2200-1. Quiz 3. Fall 2008.

Name: _____

December 9, 2008

Problem 1: _____ /18

Problem 2: _____ /16

Problem 3: _____ /16

Total: _____ /50

Instructions: The exam is closed book, closed notes and calculators are not allowed. You are only allowed one letter-size sheet of paper with anything on it.

You will have 30 minutes for this test. The point value of each problem is written next to the problem - use your time wisely. Please show all work, unless instructed otherwise. Partial credit will be given only for work shown.

Problem 1. What is the probability that a seven-card poker hand contains:

- (a) four cards of one kind and three cards of a second kind?
- (b) pairs of each of three different kinds and a single card of a fourth kind?
- (c) a flush (all cards of the same suit)?

Problem 2. Which is more likely: rolling a total of 8 when two dice are rolled or rolling a total of 8 when three dice are rolled? (You should give a rigorous proof, by computing the probabilities involved.)

Problem 3. There are three cards in a box. Both sides of one card are black, both sides of one card are red, and the third card has one black side and one red side. We pick a card at random and observe only one side.

- (a) If the side is black, what is the probability that the other side is also black?
- (b) What is the probability that the opposite side is the same color as the one we observed?