

Name: _____

Math 203: Contemporary Mathematics

Chapter 10 test, version (a)

Thursday, April 2, 2009

60 points

Instructions:

1. This test has 4 pages (including this one), which contain 3 questions. Please check that you have all of the pages.
 2. Read each question carefully. If you have any questions, please ask.
 3. Answer all of the following questions clearly and completely. Justify all of your answers. Most of the points you receive will be based on the accuracy, completeness, and clarity of your responses. Use full sentences, and avoid saying things that are untrue, ambiguous, or nonsensical.
 4. You may use a calculator for this test, but you may not use a book or any notes.
 5. Give your answer to each question completely and clearly in the space provided. You may use the back of the test pages for scratch work; however, if you want this work to be considered, please make note of it in the space provided for the question.
 6. Erase or cross out work you do not wish to be graded.
 7. You have 25 minutes to complete this test. Good luck!
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Question 1. (19 points.) Consider the following experiment.

A 6-sided die is painted so that two faces are blue, two faces are yellow, and two faces are red. The die is rolled twice, and the colors that come up are recorded.

(a) (9 points.) What is the sample space for this experiment?

(b) (10 points.) What is the difference between an *outcome* and an *event*? For the experiment above, give an example of an outcome and an example of an event that illustrate this difference.

Question 2. (17 points.) Suppose you and a friend play a game. Two standard 6-sided dice are rolled and the numbers showing on each die are multiplied. If the product is even, your friend gives you a quarter, but if the product is odd, you must give your friend one dollar.

(a) (6 points.) What is the expected value of the game for you? Round to the nearest cent.

(b) (6 points.) What is the expected value of the game for your friend? Round to the nearest cent.

(c) (5 points.) Is this game fair? Why or why not?

Question 3. (24 points.) A jar contains two red marbles, three green marbles, one blue marble, and one white marble. Two marbles are drawn from the jar at random without replacement.

(a) (12 points.) Draw a probability tree diagram for this experiment.

(b) (6 points.) What is the probability that one of the two marbles drawn is blue?

(c) (6 points.) What are the odds in favor of the event that one of the two marbles drawn is blue?

Name: _____

Math 203: Contemporary Mathematics

Chapter 10 test, version (b)

Thursday, April 2, 2009

60 points

Instructions:

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 6. Erase or cross out work you do not wish to be graded.
 7. You have 25 minutes to complete this test. Good luck!
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Question 1. (19 points.) Consider the following experiment.

A coin is flipped three times, and the results of the three flips are recorded.

(a) (9 points.) What is the sample space for this experiment?

(b) (10 points.) What is the difference between an *outcome* and an *event*? For the experiment above, give an example of an outcome and an example of an event that illustrate this difference.

Question 2. (24 points.) A jar contains one yellow marble, two black marbles, one green marble, and three purple marbles. Two marbles are drawn from the jar at random without replacement.

(a) (12 points.) Draw a probability tree diagram for this experiment.

(b) (6 points.) What is the probability that one of the two marbles drawn is green?

(c) (6 points.) What are the odds in favor of the event that one of the two marbles drawn is green?

Question 3. (17 points.) Suppose you and a friend play a game. Two standard 6-sided dice are rolled and the numbers showing on each die are multiplied. If the product is even, your friend gives you a quarter, but if the product is odd, you must give your friend one dollar.

(a) (6 points.) What is the expected value of the game for you? Round to the nearest cent.

(b) (6 points.) What is the expected value of the game for your friend? Round to the nearest cent.

(c) (5 points.) Is this game fair? Why or why not?