Test Your Knowledge– Binomial Probability Formula

Name_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the indicated probability.

1) A test consists of 10 true/false questions. To pass the test a student must answer at least 8   1) _____
   questions correctly. If a student guesses on each question, what is the probability that the
   student will pass the test?

2) A machine has 11 identical components which function independently. The probability   2) _____
   that a component will fail is 0.2. The machine will stop working if more than three
   components fail. Find the probability that the machine will be working.

3) In a certain college, 33% of the physics majors belong to ethnic minorities. If 10 students are   3) _____
   selected at random from the physics majors, that is the probability that no more than 6
   belong to an ethnic minority?

4) Find the probability of at least 2 girls in 9 births. Assume that male and female births are   4) _____
   equally likely and that the births are independent events.

5) A company purchases shipments of machine components and uses this acceptance   5) _____
   sampling plan: Randomly select and test 26 components and accept the whole batch if
   there are fewer than 3 defectives. If a particular shipment of thousands of components
   actually has a 3% rate of defects, what is the probability that this whole shipment will be
   accepted?

6) An airline estimates that 92% of people booked on their flights actually show up. If the   6) _____
   airline books 75 people on a flight for which the maximum number is 73, what is the
   probability that the number of people who show up will exceed the capacity of the plane?

Solve the problem.

7) According to a college survey, 22% of all students work full time. Find the mean for the   7) _____
   number of students who work full time in samples of size 16.

8) On a multiple choice test with 21 questions, each question has four possible answers, one   8) _____
   of which is correct. For students who guess at all answers, find the mean for the number of
   correct answers.

9) A company manufactures batteries in batches of 11 and there is a 3% rate of defects. Find   9) _____
   the standard deviation for the number of defects per batch.

10) On a multiple choice test with 12 questions, each question has four possible answers, one   10) _____
    of which is correct. For students who guess at all answers, find the variance for the number
    of correct answers.

1) 0.055
2) 0.839
3) 0.9815
4) 0.980
5) 0.9580
6) 0.0145
7) 3.52
8) 5.3
9) 0.566
10) 2.25