

AP Statistics Take-Home Quiz

Name: _____

Directions and Expectations: The expectation of this take home quiz is that it will be completely **independently**. Since this method of quizzing is subject to unsupervised copying or assistance from peers/classmates, I will be paying extra close attention to student work. Please keep in mind, cheating results in a loss of credit for the **summative grade**. This is due by the next class period.

1. Annapolis High School is thinking about buying a new copy machine for the teachers. They are looking at two different models to find the best one for the price. Machine 1 costs \$11,000 and Machine 2 costs \$11,500. The school usually replaces these machines every three years or so. The contract for repairs of Machine 1 costs \$75 per month and covers an unlimited amount of repairs. The contract for repairs of Machine 2 costs \$250 per repair. The table below shows the distribution of the number of repairs needed over any one-year period for Machine 2 (based on past performance):

Number of Repairs	0	1	2	3
Probability	0.50	0.25	0.15	0.10

You, as a brilliant AP Statistics student, are asked to give a recommendation based on the overall cost of the machine and repair contracts as to which machine, 1 or 2, should be purchased. Which would you recommend? Don't forget your statistical justification.

Another question on the back →

Hershey's Chocolate produces homemade Chocolate Chip cookies that it sells in bags labeled "24 ounces". The total weight of each bag follows an approximately Normal distribution with a mean of 24.75 oz. and a standard deviation of 0.10 oz.

- A. If you randomly selected 1 bag of these cookies, what is the probability that the total weight is less than 24 ounces?

- B. If you randomly selected 10 bags of these cookies, what is the probability that exactly 3 of the bags will have a total weight less than 24 ounces?

- C. Hershey's Chocolate ships its cookies in boxes that contain 6 bags. The empty boxes have a mean weight of 10 ounces and a standard deviation of 0.05 ounces. Calculate the mean and standard deviation of the total weight of a box containing 6 bags of cookies.

- D. Hershey's Chocolate decides to increase the mean weight of each bag of cookies so that only 7% of the bags have weights that are less than 24 ounces. Assuming that the standard deviation remains 0.10 ounces, what mean weight should Hershey's use?