

This quiz covers material from sections 8.1–8.3.

1. (*2 points*) Circle the histogram that represents a probability distribution with the greater **variance**.

2. (*4 points*) Acme Stanley Investments offers two mutual funds. The anticipated returns from price appreciation and dividends (in hundreds of dollars) are described by the following probability distribution:

Mutual Fund A

Returns	Probability
-10	.1
-5	.1
0	.3
5	.3
10	.2

Mutual Fund B

Returns	Probability
-10	.2
-5	.1
0	.1
5	.1
10	.5

- a.** (*2 pts*) Calculate the expected return of both mutual funds. Which is greater?
- b.** (*2 pts*) In which investment would the element of risk be less (that is, find the lower variance/standard deviation).

3. (4 points) A survey of University of Maryland students was conducted to determine the number of hours per week they spend on homework. The average number of hours was 10, while the standard deviation was 2 hours. Use Chebychev's Inequality to complete the following statement:

At least _____% of the students spend between 6 and 14 hours on homework.

4. (5 points) (BONUS) Are the following binomial experiments (which is the same as asking if these are Bernoulli trials)? Do **not** calculate anything, just answer yes or no.

a. (1 pt) A scratch and win lottery ticket has four boxes to scratch. Each box has a 1 in 100 chance of containing a dollar sign. If you get all four dollar signs you win a million dollars. What is the probability of winning a million dollars?

b. (1 pt) Acme's Club supermarkets pick one customer at random from each age range (20-, 21-25, all the way up to 55+) and count the number of customers who spent over \$50. What is the probability that exactly four of them spent over \$50?

c. (1 pt) At the end of the night on Halloween, a trick-or-treater randomly picks a piece of candy from her stash, eats it, and then picks again. She does this twenty times. What is the probability she eats five KitKat bars?

d. (1 pt) Tiger Woods' drives have a 93% chance of hitting the fairway. What is the probability he hits the fairway at least half the time in 18 holes of golf?

e. (1 pt) Suppose a pub patron has a 15% chance of hitting their shot at the dartboard. They throw a dart at the bullseye until they hit it. What is the probability it took 10 tries?