

Quiz 7 Review Sheet

Name: _____

Probability Distributions & Expected Value

Vocabulary—Use your notes to find the exact answer that fits each blank.

1. The symbol used to denote the population mean is _____.
2. The symbol used to denote the population standard deviation is _____.
3. The population _____ measures how spread out all of numbers are.
4. The population _____ is equal to the average of the given property while considering every member of the population.
5. A _____ is a variable whose values are determined by chance
6. A variable obtained from data that must be counted whose values are determined by chance are called _____ random variables
7. A variable obtained from data that must be measured whose values are determined by chance are called _____ random variables
8. A _____ consists of all possible outcomes, X , and the corresponding probabilities of the outcomes, $P(X)$
9. The _____ of a random variable is intuitively the long-run average value of repetitions of the experiment it represents.

Discrete or Continuous Random Variables

10. The time it takes a student selected at random to register for the fall semester _____
11. The number of bad checks drawn on Upright Bank on a day selected at random _____
12. The amount of gasoline needed to drive your car 200 miles _____
13. The number of traffic fatalities per year in the state of Florida _____
14. The distance a golf ball travels after being hit with a driver _____
15. The number of ships in Pearl Harbor on any given day _____
16. Your weight before breakfast each morning _____

Work Problems—answer each question fully.

For numbers 17-19, state if the following are valid probability distributions? If not, state a reason.

17.

X	30	31	32	33	34
P(X)	0.35	0.21	0.38	0.25	0.11

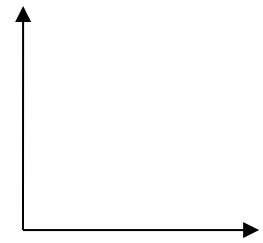
18.

X	0	1	2	3
P(X)	0.2	0.6	0.4	-0.2

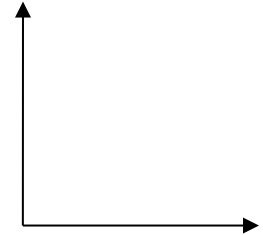
19.

X	2	2.5	3	3.5
P(X)	1/12	1/4	1/8	13/24

20. A box contains three \$1 bills, two \$5 bills, one \$10 bill, and one \$20 bill. Construct a probability distribution. Graph the results.



21. A bag of marbles contains three red marbles that count as 2 points each, four blue marbles that count as 6 points each, two orange marbles that count as 5 points each, and six green marbles that count as 4 points each. Construct a probability distribution. Graph the results.



Find the mean and the standard deviation of the following probability distributions.

22.

X	0	1	2	3	4	5
P(X)	0.06	0.42	0.22	0.12	0.15	0.03

$\mu =$ _____

$\sigma =$ _____

23.

X	0	2	4	6
P(X)	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{4}$

$\mu =$ _____

$\sigma =$ _____

Find the expected value of each problem.

24. One thousand tickets are sold at \$2.50 each for four prizes (one of each) of \$1000, \$100, \$50, and \$25. What is the expected value if a person purchases one ticket?

$E(X) =$ _____

25. A lottery offers one \$1500 prize, one \$600 prize, and five \$75 prizes. One thousand tickets are sold at \$3 each. Find the expected value if a person buys one ticket.

$E(X) =$ _____

26. Two thousand tickets are sold at \$1 each for a computer system valued at \$1500. What is the expected value if a person purchases **two** tickets?

$E(X) =$ _____