

submissions remaining for each question part only changes if you submit or change the answer.

Assignment Scoring

Your last submission is used for your score.

1. [12.5/12.5 Points]

DETAILS

PREVIOUS ANSWERS

ASWSBE14 5.E.012.

MY NOTES

ASK YOUR TEACHER

PRACTICE ANOTHER

Spectrum provides cable television and internet service to millions of customers. Suppose that the management of Spectrum subjectively assesses a probability distribution for the number of new subscribers next year in the state of New York as follows.

x	$f(x)$
100,000	0.10
200,000	0.20
300,000	0.25
400,000	0.30
500,000	0.10
600,000	0.05

(a) Is this probability distribution valid? Explain.

This probability distribution is valid because $f(x) \geq 0$ for $x = 100,000, 200,000, 300,000, 400,000, 500,000, 600,000$. Also, $\sum f(x) = 1$.

(b) What is the probability Spectrum will obtain more than 400,000 new subscribers?

(c) What is the probability Spectrum will obtain fewer than 200,000 new subscribers?

Need Help?

Read It

2. [12.5/12.5 Points]

DETAILS

PREVIOUS ANSWERS

ASWSBE14 5.E.018.

MY NOTES

ASK YOUR TEACHER

PRACTICE ANOTHER

The following data has been collected on the number of times that owner-occupied and renter-occupied units had a water supply stoppage lasting 6 or more hours in the past 3 months.

Number of Times	Number of Units (1,000s)	
	Owner Occupied	Renter Occupied
0	439	394
1	1,200	760
2	249	221
3	98	92
4 times or more	120	112

- (a) Define a random variable x = number of times that owner-occupied units had a water supply stoppage lasting 6 or more hours in the past 3 months and develop a probability distribution for the random variable. (Let $x = 4$ represent 4 or more times. Round your answers to four decimal places.)

x	$f(x)$	$xf(x)$	$x - \mu$	$(x - \mu)^2$	$(x - \mu)^2 f(x)$
0	0.2085 ✓	0 ✓	-1.1738 ✓	1.3778 ✓	0.2872 ✓
1	0.5698 ✓	0.5698 ✓	-0.1738 ✓	0.0302 ✓	0.0172 ✓
2	0.1182 ✓	0.2365 ✓	0.8262 ✓	0.6826 ✓	0.0807 ✓
3	0.0465 ✓	0.1396 ✓	1.8262 ✓	3.3350 ✓	0.1552 ✓
4	0.0570 ✓	0.2279 ✓	2.8262 ✓	7.9875 ✓	0.4551 ✓

- (b) Compute the expected value and variance for x . (Round your answers to four decimal places.)

expected value 1.1738 ✓

variance 0.9954 ✓

- (c) Define a random variable y = number of times that renter-occupied units had a water supply stoppage lasting 6 or more hours in the past 3 months and develop a probability distribution for the random variable. (Let $y = 4$ represent 4 or more times. Round your answers to four decimal places.)

y	$f(y)$	$yf(y)$	$y - \mu$	$(y - \mu)^2$	$(y - \mu)^2 f(y)$
0	0.2495 ✓	0.0000 ✓	-1.2198 ✓	1.4878 ✓	0.3712 ✓

1	<input type="text" value="0.4813"/> ✓	<input type="text" value="0.4813"/> ✓	<input type="text" value="-0.2198"/> ✓	<input type="text" value="0.0483"/> ✓	<input type="text" value="0.0232"/> ✓
2	<input type="text" value="0.1400"/> ✓	<input type="text" value="0.2799"/> ✓	<input type="text" value="0.7802"/> ✓	<input type="text" value="0.6088"/> ✓	<input type="text" value="0.0852"/> ✓
3	<input type="text" value="0.0583"/> ✓	<input type="text" value="0.1748"/> ✓	<input type="text" value="1.7802"/> ✓	<input type="text" value="3.1693"/> ✓	<input type="text" value="0.1847"/> ✓
4	<input type="text" value="0.0709"/> ✓	<input type="text" value="0.2837"/> ✓	<input type="text" value="2.7802"/> ✓	<input type="text" value="7.7297"/> ✓	<input type="text" value="0.5483"/> ✓

(d) Compute the expected value and variance for y . (Round your answers to four decimal places.)

expected value ✓

variance ✓

(e) What observations can you make from a comparison of the number of water supply stoppages reported by owner-occupied units versus renter-occupied units?

The expected number of times that owner-occupied units have a water supply stoppage lasting 6 or more hours in the past 3 months is ✓ the expected value for renter-occupied units. The variability for owner-occupied units is ✓ the variability for renter-occupied units.

Need Help?

Read It

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3. [12.5/12.5 Points]

DETAILS

PREVIOUS ANSWERS

ASWSBE14 5.E.030.

MY NOTES

ASK YOUR TEACHER

PRACTICE ANOTHER

J.P. Morgan Asset Management publishes information about financial investments. Over the past 10 years, the expected return for the S&P 500 was 5.04% with a standard deviation of 19.45% and the expected return over that same period for a core bonds fund was 5.78% with a standard deviation of 2.13%.† The publication also reported that the correlation between the S&P 500 and core bonds is -0.32 .

J.P. Morgan Asset Management also reported that the expected return for real estate investment trusts (REITs) was 13.07% with a standard deviation of 23.17%. The correlation between the S&P 500 and REITs is 0.74 and the correlation between core bonds and REITs is -0.04 . (Past performance is no guarantee of future results.)

You are considering portfolio investments that are composed of an S&P 500 index fund and REITs as well as portfolio investments composed of a core bonds fund and REITs.

- (a) Using the information provided, determine the covariance between the S&P 500 and REITs and between core bonds and REITs. (Round your answers to three decimal places.)

S&P 500 and REITs ✓

core bonds and REITs ✓

- (b) Construct a portfolio that is 50% invested in an S&P 500 fund and 50% invested in REITs. In percentage terms, what are the expected return and standard deviation for such a portfolio? (Round your answer for the standard deviation to two decimal places.)

expected return ✓ %

standard deviation ✓ %

- (c) Construct a portfolio that is 50% invested in a core bonds fund and 50% invested in REITs. In percentage terms, what are the expected return and standard deviation for such a portfolio? (Round your answer for the standard deviation to two decimal places.)

expected return ✓ %

standard deviation ✓ %

- (d) Construct a portfolio that is 65% invested in a core bonds fund and 35% invested in REITs. In percentage terms, what are the expected return and standard deviation for such a portfolio? (Round your answer for the standard deviation to two decimal places.)

expected return ✓ %

standard deviation ✓ %

- (e) Which of the portfolios in parts (b), (c), and (d) would you recommend to an aggressive investor? Why?

The portfolio consisting of ✓ is recommended for the aggressive investor because of its ✓ return and moderate amount of risk.

Which would you recommend to a conservative investor? Why?

The portfolio consisting of ✓ is recommended to the conservative investor because of its moderate return and ✓ risk.

Need Help?

Read It

4. [12.5/12.5 Points]

DETAILS

PREVIOUS ANSWERS

ASWSBE14 5.E.036.

MY NOTES

ASK YOUR TEACHER

PRACTICE ANOTHER

When a new machine is functioning properly, only 6% of the items produced are defective. Assume that we will randomly select two parts produced on the machine and that we are interested in the number of defective parts found.

(a) Describe the conditions under which this situation would be a binomial experiment. (Select all that apply.)

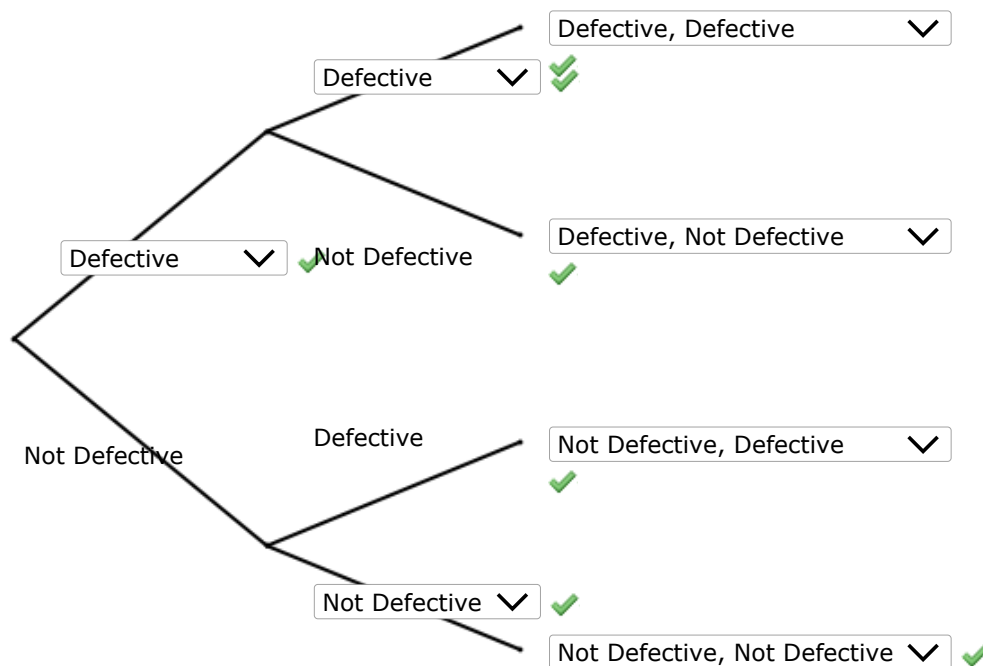
- ☒ The parts must be selected independently.
- ☐ The selection of a part is dependent on the first part selected.
- ☐ The probability of choosing a part that is defective must be 0.94.
- ☐ The number of successes and failures in this experiment are equal.
- ☒ For each part selected, the probability of a defective part being produced must be 0.06.



(b) Draw a tree diagram similar to [this section's example](#) showing this problem as a two-trial experiment.

Tree Diagram

Description



(c) How many experimental outcomes result in exactly one defect being found?

In this scenario, will result in finding exactly one defect.

(d) Compute the probabilities associated with finding no defects, exactly one defect, and two defects. (Round your

answers to four decimal places.)

$$P(\text{no defects}) = \boxed{0.8836} \quad \checkmark$$

$$P(1 \text{ defect}) = \boxed{0.1128} \quad \checkmark$$

$$P(2 \text{ defects}) = \boxed{0.0036} \quad \checkmark$$

Need Help?

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5. [12.5/12.5 Points]

DETAILS

PREVIOUS ANSWERS

ASWSBE14 5.E.039.

MY NOTES

ASK YOUR TEACHER

PRACTICE ANOTHER

You may need to use the appropriate [appendix table](#) or [technology](#) to answer this question.

Market-share-analysis company Net Applications monitors and reports on internet browser usage. According to Net Applications, in the summer of 2014, Google's Chrome browser exceeded a 20% market share for the first time, with a 20.37% share of the browser market.† For a randomly selected group of 25 Internet browser users, answer the following questions. (Round your answers to four decimal places.)

- (a) Compute the probability that exactly 8 of the 25 Internet browser users use Chrome as their Internet browser. (Round your answer to four decimal places.)

$$\boxed{0.0667} \quad \checkmark$$

- (b) Compute the probability that at least 3 of the 25 Internet browser users use Chrome as their Internet browser. (Round your answer to four decimal places.)

$$\boxed{0.9091} \quad \checkmark$$

- (c) For the sample of 25 Internet browser users, compute the expected number of Chrome users.

$$\boxed{5.0925} \quad \checkmark$$

- (d) For the sample of 25 Internet browser users, compute the variance and standard deviation for the number of Chrome users. (Round your answers to four decimal places.)

$$\text{variance} \quad \boxed{4.0552} \quad \checkmark$$

$$\text{standard deviation} \quad \boxed{2.0137} \quad \checkmark$$

Need Help?

Read It

6. [12.5/12.5 Points]

DETAILS

PREVIOUS ANSWERS

ASWSBE14 5.E.045.

MY NOTES

ASK YOUR TEACHER

PRACTICE ANOTHER

Consider a Poisson distribution with a mean of **two** occurrences per time period.

- (a) Write the appropriate Poisson probability function.

 $f(x) =$


- (b) What is the expected number of occurrences in **three** time periods?

- (c) Write the appropriate Poisson probability function to determine the probability of x occurrences in **three** time periods.

 $f(x) =$


- (d) Compute the probability of **two** occurrences in one time period. (Round your answer to four decimal places.)

- (e) Compute the probability of **six** occurrences in **three** time periods. (Round your answer to four decimal places.)

- (f) Compute the probability of **five** occurrences in **two** time periods. (Round your answer to four decimal places.)

Need Help?

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7. [12.5/12.5 Points]

DETAILS

PREVIOUS ANSWERS

ASWSBE14 5.E.049.

MY NOTES

ASK YOUR TEACHER

PRACTICE ANOTHER

You may need to use the appropriate [appendix table](#) or [technology](#) to answer this question.

Airline passengers arrive randomly and independently at the passenger-screening facility at a major international airport. The mean arrival rate is 10 passengers per minute. (Round your answers to six decimal places.)

- (a) Compute the probability of no arrivals in a one-minute period.

 ✓

- (b) Compute the probability that three or fewer passengers arrive in a one-minute period.

 ✓

- (c) Compute the probability of no arrivals in a 21-second period.

 ✓

- (d) Compute the probability of at least one arrival in a 21-second period.

 ✓

Need Help?

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8. [12.5/12.5 Points]

DETAILS

PREVIOUS ANSWERS

ASWSBE14 5.E.057.

MY NOTES

ASK YOUR TEACHER

PRACTICE ANOTHER

The Zagat Restaurant Survey provides food, decor, and service ratings for some of the top restaurants across the United States. For 18 restaurants located in a certain city, the average price of a dinner, including one drink and tip, was \$48.60. You are leaving on a business trip to this city and will eat dinner at three of these restaurants. Your company will reimburse you for a maximum of \$50 per dinner. Business associates familiar with these restaurants have told you that the meal cost at one-third of these restaurants will exceed \$50. Suppose that you randomly select three of these restaurants for dinner. (Round your answers to four decimal places.)

(a) What is the probability that none of the meals will exceed the cost covered by your company?

 ✓

(b) What is the probability that one of the meals will exceed the cost covered by your company?

 ✓

(c) What is the probability that two of the meals will exceed the cost covered by your company?

 ✓

(d) What is the probability that all three of the meals will exceed the cost covered by your company?

 ✓

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