Homework: Module 3: Probability And Binomial Probability

Score: 0 of 1 pt

1 of 45 (0 complete)

3.1-1

Which of the following cannot be a probability?

- A. -94
- B. $\frac{\sqrt{3}}{3}$
- C. 0
- D. 0.001

Well done!

Next Question

Score: 0 of 1 pt

2 of 45 (1 complete)

3.1.1

What is the difference between an outcome and an event?

Choose the correct answer below.

- A. An outcome is the result of a single probability experiment. An event is the set of all possible outcomes.
- B. An outcome is the result of a single probability experiment. An event is a set of one or more possible outcomes.
- C. An event is the result of a single probability experiment. An outcome is the set of all possible events.
- D. An event is the result of a single probability experiment. An outcome is a set of one or more possible events.

Well done!

A probability experiment is an action, or trial, through which specific results (counts, measurements, or responses) are obtained. The result of a single trial in a probability experiment is an outcome. The set of all possible outcomes of a probability experiment is the sample space. An event is a subset of the sample space. It may consist of one or more outcomes.

Next Question

Score: 0 of 1 pt

3 of 45 (2 complete)

3.1.2

Determine which numbers could **not** be used to represent the probability of an event.

Select all that apply.

- [ ] A. $\frac{320}{1058}$, because probability values cannot be in fraction form.
- [x] B. $\frac{64}{25}$, because probability values cannot be greater than 1.
- [ ] C. 33.3%, this is because probability values cannot be greater than 1.
- [ ] D. 0, because probability values must be greater than 0.
- [x] E. −1.5, because probability values cannot be less than 0.
- [ ] F. 0.0002, because probability values must be rounded to two decimal places.

✔ Nice work!

The definition of probability states the probability of an event occuring must be contained in the interval [0,1] or [0%,100%].

Next Question

Score: 0 of 1 pt

4 of 45 (3 complete)

3.1.6

Choose the three formulas that can be used to describe complementary events.

Select the three formulas that can be used to describe complementary events.

- [x] A. $P(E') = 1 - P(E)$
- [ ] B. $P(E) - P(E') = 1$
- [ ] C. $P(E') = \frac{1}{P(E)}$
- [ ] D. $\frac{P(E)}{P(E')} = 1$
- [x] E. $P(E) + P(E') = 1$
- [ ] F. $P(E) = \frac{1}{P(E')}$
- [x] G. $P(E) = 1 - P(E')$

✔ Nice work!

The definition of the complement of an event is the set of all outcomes in a sample space that are not included in an event E. By definition, the formulas for the complement are $P(E') = 1 - P(E)$, $P(E') + P(E) = 1$, and $P(E) = 1 - P(E')$.

Next Question

Score: 0 of 1 pt

5 of 45 (4 complete)

3.1.7

Determine whether the statement is true or false.

You toss a coin and roll a die. The event "tossing tails and rolling a 3 or 5" is a simple event.

Determine the most appropriate conclusion.

- A. False, the event is not simple because it requires the probability of the coin and the probability of the die to be calculated.
- B. False, the event is not simple because it consists of two possible outcomes.
- C. True, the event is simple since the coin will land on tails 50% of the time.
- D. True, the event is simple because only one condition in the event needs to be met.

Fantastic!

Next Question

Score: 0 of 1 pt

7 of 45 (6 complete)

3.1.10

Determine whether the statement is true or false.

When an event is almost certain to happen, its complement will be an unusual event.

Determine the most appropriate conclusion.

- A. False, the probability of the complement has no relation to the probability of the event.
- B. True, the complement would be an unusual event.
- C. False, the probability of the complement will have a higher probability than the event.
- D. False, the complement of an event has an equal probability as the event.

Good job!

If an event, E, is almost certain to happen, its complement will be an unusual event. A complement of event E is the set of all outcomes in a sample space that are not included in event E. Thus, the complement of E will have a very low probability, making it unusual.

Next Question

Score: 0 of 1 pt

8 of 45 (7 complete)

HW Score: 15.56%, 7 of 45 pts

3.1.13

Question Help

You randomly select an integer from 0 to 4 (inclusively) and then randomly select an integer from 0 to 9 (inclusively). What is the probability of selecting a 2 both times?

The probability is 0.02.

(Type an integer or a decimal. Do not round.)

Good job!

Next Question

Score: 0 of 1 pt

9 of 45 (8 complete)

HW Score: 17.78%, 8 of 45 pts

3.1.15

Question Help

Eleven of the 200 digital video recorders (DVRs) in an inventory are known to be defective. What is the probability you randomly select a DVR that is not defective?

The probability is 0.945.

(Type an integer or a decimal. Do not round.)

Score: 0 of 1 pt

10 of 45 (9 complete)

3.1.25

Identify the sample space of the probability experiment and determine the number of outcomes in the sample space.

Randomly choosing a number from the multiples of 4 between 20 and 40, inclusive

The sample space is { 20, 24, 28, 32, 36, 40 }.
(Use a comma to separate answers as needed. Use ascending order.)

There are 6 outcome(s) in the sample space.

Score: 0 of 1 pt

11 of 45 (10 complete)

HW Score: 22.22%, 10 of 45 pts

3.1.28

Question Help

Identify the sample space of the probability experiment and determine the number of outcomes in the sample space. Draw a tree diagram.

Determining a person's letter grade (A, B, C, D, F) and gender (male (M), female (F))

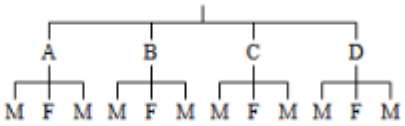
Identify the sample space.

A. {AM, AF, AM, BM, BF, BM, CM, CF, CM, DM, DF, DM}
B. {AM, AF, AM, BM, BF, BM, CM, CF, CM}
C. {AM, AF, BM, BF, CM, CF, DM, DF, FM, FF}
D. {AM, AF, BM, BF, CM, CF, DM, DF}

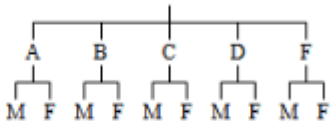
There are 10 outcomes in the sample space.

Choose the correct tree diagram below.

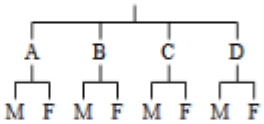
A.



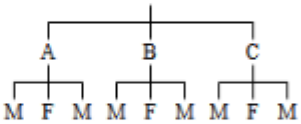
B.



C.



D.



Score: 0 of 1 pt

12 of 45 (11 complete)

HW Score: 24.44%, 11 of 45 pts

3.1.53

Question Help

Classify the following statement as an example of classical probability, empirical probability, or subjective probability. Explain your reasoning.

According to company records, the probability that a washing machine will need repairs during a nine-year period is 0.21.

This is an example of empirical probability, since the stated probability is calculated based on observations from the company records.

Score: 0 of 1 pt | 13 of 45 (12 complete) | **HW Score:** 26.67%, 12 of 45 pts

3.1.55

Question Help

Classify the following statement as an example of classical probability, empirical probability, or subjective probability. Explain your reasoning.

An analyst feels that a certain stock's probability of decreasing in price over the next week is 0.46.

This is an example of subjective probability, since

- the stated probability is the relative frequency of the stock price decreasing in past weeks.
- the stated probability is most likely based on intuition, an educated guess, or an estimate.
- the stock's chance of decreasing in price is the same in every week.
- it deals with a continuous period rather than a fixed number of trials.
- the stock has an equal chance of increasing or decreasing in price over the next week.

Score: 0 of 1 pt | 14 of 45 (13 complete) | **HW Score:** 28.89%, 13 of 45 pts

3.1.67

Question Help

The access code for a garage door consists of three digits. Each digit can be any number from 1 through 5, and each digit can be repeated. Complete parts (a) through (c).

(a) Find the number of possible access codes.
(b) What is the probability of randomly selecting the correct access code on the first try?
(c) What is the probability of not selecting the correct access code on the first try?

(a) Find the number of possible access codes.

The number of different codes available is 125.

(b) What is the probability of randomly selecting the correct access code on the first try?

The probability of randomly selecting the correct access code is 0.008.
(Round to three decimal places as needed.)

(c) What is the probability of not selecting the correct access code on the first try?

The probability of not selecting the correct access code is 0.992.

Score: 0 of 1 pt | 15 of 45 (14 complete)

3.1-19

A question has five multiple-choice answers. Find the probability of guessing an incorrect answer.

- A. $\frac{1}{5}$
- B. $\frac{4}{5}$
- C. $\frac{5}{2}$
- D. $\frac{3}{5}$

Score: 0 of 1 pt | 16 of 45 (15 complete) | **HW Score:** 33.33%, 15 of 45 pts

3.2.1

Question Help

What is the difference between independent and dependent events?

Choose the correct answer below.

- A. Two events are independent if they can occur at the same time. Two events are dependent if only one of the two events can occur.
- B. Two events are independent when the occurrence of one event does not affect the probability of the occurrence of the other event. Two events are dependent when the occurrence of one event affects the probability of the occurrence of the other event.
- C. Two events are independent when the occurrence of one event affects the probability of the occurrence of the other event. Two events are dependent when the occurrence of one event does not affect the probability of the occurrence of the other event.
- D. Two events are independent if only one of the two events can occur. Two events are dependent if they can occur at the same time.

✔ Nice work!

Two events are independent when the occurrence of one event does not affect the probability of the occurrence of the other event. Two events are dependent when the occurrence of one event affects the probability of the occurrence of the other event. Events that are not independent are dependent. In terms of probabilities, two events A and B are independent when $P(B|A) = P(B)$ or $P(A|B) = P(A)$.

Next Question

Score: 0 of 1 pt | 17 of 45 (16 complete) | **HW Score:** 35.56%, 16 of 45 pts

3.2.3

Question Help

What does the notation $P(B|A)$ mean?

Choose the correct answer below.

- A. The probability of event B occurring, given that event A has occurred
- B. The probability of both event A and event B occurring
- C. The probability of event B occurring, divided by the probability of event A occurring
- D. The probability of event A occurring, given that event B has occurred

Score: 0 of 1 pt | 18 of 45 (17 complete) | **HW Sc**

3.2.4

Explain how the complement can be used to find the probability of getting at least one item of a particular type.

Choose the correct answer below.

- A. The complement of "at least one" is "none." So, the probability of getting at least one item is equal to P(none of the items) − 1.
- B. The complement of "at least one" is "all." So, the probability of getting at least one item is equal to P(all items) − 1.
- C. The complement of "at least one" is "none." So, the probability of getting at least one item is equal to 1 − P(none of the items).
- D. The complement of "at least one" is "all." So, the probability of getting at least one item is equal to 1 − P(all items).

✔ Fantastic!

Getting "none of the items" is the set of all outcomes in the sample space that are not included in "at least one item." Using the definition of the complement of an event and the fact that the sum of the probabilities of all outcomes is 1, the following formula is obtained.

P(at least one item) = 1 − P(none of the items)

Next Question

Score: 0 of 1 pt

19 of 45 (18 complete)

3.2.5

Determine whether the following statement is true or false. If it is false, rewrite it as a true statement.

If two events are independent, $P(A|B) = P(B)$.

Choose the correct answer below.

- A. True
- B. False; if events A and B are independent, then $P(A \text{ and } B) = P(A) \cdot P(B)$.
- C. False; if events A and B are independent, then $P(A \text{ and } B) = 0$.
- D. False; if events A and B are independent, then $P(B|A) = P(A)$.

Excellent!

Two events are independent if the occurrence of one of the events does not affect the probability of the occurrence of the other event. Two events A and B are independent if $P(B|A) = P(B)$ or if $P(A|B) = P(A)$.

Next Question

Score: 0 of 1 pt

20 of 45 (19 complete)

HW Score: 42.22%, 19 of 45 pts

3.2.7

Question Help

The accompanying table shows the numbers of male and female students in a particular country who received bachelor's degrees in business in a recent year. Complete parts (a) and (b) below.

Click the icon to view the data on business degrees.

(a) Find the probability that a randomly selected student is male, given that the student received a business degree.

The probability that a randomly selected student is male, given that the student received a business degree, is 0.522.

(Round to three decimal places as needed.)

Business Graduates

	Business degrees	Nonbusiness degrees	Total
Male	185,022	600,480	785,502
Female	169,205	855,248	1,024,453
Total	354,227	1,455,728	1,809,955

(b) Find the probability that a randomly selected student received a business degree, given that the student is female.

The probability that a randomly selected student received a business degree, given that the student is female, is 0.165.
(Round to three decimal places as needed.)

Business Graduates

	Business degrees	Nonbusiness degrees	Total
Male	185,022	600,480	785,502
Female	169,205	855,248	1,024,453
Total	354,227	1,455,728	1,809,955

Enter your answer in the answer box and then click

All parts showing

Score: 0 of 1 pt | 21 of 45 (20 complete) | **HW Score:** 44.44%, 20 of 45 pts

3.2.11 | Question Help

Determine whether the events are independent or dependent. Explain your reasoning.

Returning a rented movie after the due date and receiving a late fee

The events are dependent because the outcome of returning a rented movie after the due date affects the probability of the outcome of receiving a late fee.

Score: 0 of 1 pt | 22 of 45 (21 complete) | **HW Score:** 46.67%, 21 of 45 pts

3.2.19 | Question Help

Two cards are selected from a standard deck of 52 playing cards. The first card is not replaced before the second card is selected. Find the probability of selecting a nine and then selecting an eight.

The probability of selecting a nine and then selecting an eight is 0.006.
(Round to three decimal places as needed.)

Score: 0 of 1 pt | 23 of 45 (22 complete)

3.3.1

If two events are mutually exclusive, why is P(A and B) = 0?

Choose the correct answer below.

- A. P(A and B) = 0 because A and B are complements of each other.
- B. P(A and B) = 0 because A and B cannot occur at the same time.
- C. P(A and B) = 0 because A and B are independent.
- D. P(A and B) = 0 because A and B each have the same probability.

Excellent!

Two events are said to be mutually exclusive if they cannot occur simultaneously.

Score: 0 of 1 pt | 24 of 45 (23 complete) | **HW Score:** 51.11%, 23 of 45 pts

3.3.13

Question Help

A physics class has 40 students. Of these, 16 students are physics majors and 17 students are female. Of the physics majors, seven are female. Find the probability that a randomly selected student is female or a physics major.

The probability that a randomly selected student is female or a physics major is 0.65.
(Round to three decimal places as needed.)

Score: 0 of 1 pt | 25 of 45 (24 complete) | **HW Score:** 53.33%, 24 of 45 pts

3.3.25

Question Help

The table below shows the results of a survey that asked 2869 people whether they are involved in any type of charity work. A person is selected at random from the sample. Complete parts (a) through (d).

	Frequently	Occasionally	Not at all	Total
Male	223	459	798	1480
Female	207	440	742	1389
Total	430	899	1540	2869

(a) Find the probability that the person is frequently or occasionally involved in charity work.

P(being frequently involved or being occasionally involved) = 0.463
(Round to the nearest thousandth as needed.)

(b) Find the probability that the person is female or not involved in charity work at all.

P(being female or not being involved) = 0.762
(Round to the nearest thousandth as needed.)

(c) Find the probability that the person is male or frequently involved in charity work.

P(being male or being frequently involved) = 0.588
(Round to the nearest thousandth as needed.)

(d) Find the probability that the person is female or not frequently involved in charity work.

P(being female or not being frequently involved) = 0.922
(Round to the nearest thousandth as needed.)

Score: 0 of 1 pt | 26 of 45 (25 complete)

3.3-2

Decide if the events A and B are mutually exclusive or not mutually exclusive. A date in Philadelphia is selected.
A: It rains that day.
B: It snows that day.

- ○ mutually exclusive
- ◉ not mutually exclusive

Score: 0 of 1 pt

27 of 45 (26 complete)

HW Score: 57.78%, 26 of 45 pts

3.3-10

Question Help

The table lists the smoking habits of a group of college students.

Sex	Non-smoker	Regular Smoker	Heavy Smoker	Total
Man	135	43	5	183
Woman	187	21	15	223
Total	322	64	20	406

If a student is chosen at random, find the probability of getting someone who is a man or a non-smoker. Round your answer to three decimal places.

- A. 0.946
- B. 0.911
- C. 0.942
- D. 0.842

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Score: 0 of 1 pt

28 of 45 (27 complete)

3.3-12

The distribution of Master's degrees conferred by a university is listed in the table. Assume that a student majors in only one subject.

Major	Frequency
Mathematics	228
English	206
Engineering	86
Business	176
Education	222

What is the probability that a randomly selected student with a Master's degree majored in English or Mathematics? Round your answer to three decimal places.

- A. 0.224
- B. 0.248
- C. 0.473
- D. 0.527

Score: 0 of 1 pt

29 of 45 (28 complete)

HW Score: 62.22%, 28 of 45 pts

*4.5-11

Question Help

The following table contains data from a study of two airlines which fly to Small Town, USA.

	Number of flights which were on time	Number of flights which were late
Podunk Airlines	33	6
Upstate Airlines	43	5

If one of the 87 flights is randomly selected, find the probability that the flight selected arrived on time given that it was an Upstate Airlines flight. Express your answer as a simplified fraction.

- A. $\frac{43}{48}$
- B. $\frac{11}{76}$
- C. $\frac{43}{87}$
- D. None of the above is correct.

Score: 0 of 1 pt | 31 of 45 (30 complete) | **HW Score:** 66.67%, 30 of 45 pts

*4.5-13

Question Help

The following table contains data from a study of two airlines which fly to Small Town, USA.

	Number of flights which were on time	Number of flights which were late
Podunk Airlines	33	6
Upstate Airlines	43	5

If one of the 87 flights is randomly selected, find the probability that the flight selected is an Upstate Airlines flight which was on time. Express your answer as a simplified fraction.

- A. $\frac{43}{76}$
- B. $\frac{43}{87}$
- C. $\frac{11}{76}$
- D. None of the above is correct.

Score: 0 of 1 pt | 32 of 45 (31 complete)

*4.5.5

Determine the written description of the complement of the given event.

When 11 cell phones are received, at least one of them is free of defects.

Choose the correct answer below.

- A. More than one of them are defective
- B. None of them are free of defects
- C. All of them are free of defects
- D. None of them are defective

Score: 0 of 1 pt | 33 of 45 (32 complete)

4.1.15

Decide whether the random variable x is discrete or continuous. Explain your reasoning.

Let x represent the length of time it takes to run a mile.

Is the random variable x discrete or continuous? Choose the correct answer below.

- A. Continuous, because x is a random variable that cannot be counted.
- B. Discrete, because x is a random variable that can be counted.

Score: 0 of 1 pt

34 of 45 (33 complete)

4.1.17

Decide whether the random variable x is discrete or continuous.

x represents the number of dependent children in a household.

Is the random variable x discrete or continuous? Choose the correct answer below.

- (●) Discrete
- ( ) Continuous

Score: 0 of 1 pt

35 of 45 (34 complete)

HW Score: 75.56%, 34 of 45

4.1.20-T

Question Help

The data given below show the number of overtime hours worked in one week per employee. Use the data to complete parts (a) and (b).

Overtime hours	0	1	2	3	4	5	6
Employees	4	10	27	58	46	29	16

(a) Construct a probability distribution.
(b) Graph the probability distribution using a histogram and describe its shape.

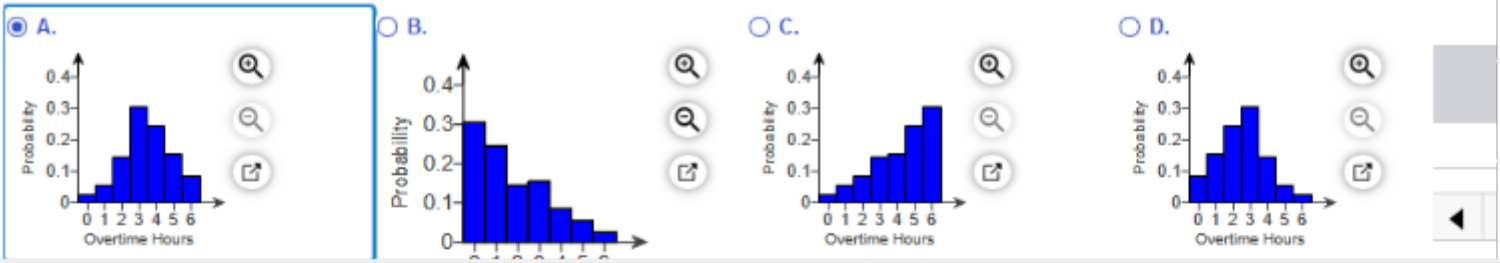
(a) Construct the probability distribution by completing the table below.

x	0	1	2	3	4	5	6
P(x)	0.021	0.053	0.142	0.305	0.242	0.153	0.084

(Round to three decimal places as needed.)

(b) Choose the correct graph of the probability distribution.

- (●) A.
- ( ) B.
- ( ) C.
- ( ) D.



Describe the distribution's shape. Choose the correct answer below.

- ( ) skewed left
- ( ) skewed right
- (●) approximately symmetric (but not uniform)
- ( ) uniform

Score: 0 of 1 pt

36 of 45 (35 complete)

4.1.27

Determine whether the distribution is a discrete probability distribution.

Is the distribution a discrete probability distribution? Why? Choose the correct answer below.

- (●) A. No, because some of the probabilities have values greater than 1 or less than 0.
- ( ) B. Yes, because the probabilities sum to 1 and are all between 0 and 1, inclusive.
- ( ) C. Yes, because the distribution is symmetric.
- ( ) D. No, because the total probability is not equal to 1.

Score: 0 of 1 pt

37 of 45 (36 complete)

HW Score: 80%,

4.1.32

Question H

Use the probability distribution to complete parts (a) and (b) below.

The number of school-related extracurricular activities per student

Activities	0	1	2	3	4	5	6	7
Probability	0.061	0.121	0.162	0.178	0.213	0.128	0.084	0.053

(a) Find the mean, variance, and standard deviation of the probability distribution.

The mean is 3.3.
(Round to one decimal place as needed.)

The variance is 3.4.
(Round to one decimal place as needed.)

The standard deviation is 1.8.
(Round to one decimal place as needed.)

(b) Interpret the results.

The mean is 3.3, so the average student is involved in 3 or 4 activities. The standard deviation is 1.8, so the typical number of activities per student deviates from the mean by about 2 activities.

4.1.37

Question Help

In the game of roulette, a player can place a $8 bet on the number 12 and have a $\frac{1}{38}$ probability of winning. If the metal ball lands on 12, the player gets to keep the $8 paid to play the game and the player is awarded an additional $280. Otherwise, the player is awarded nothing and the casino takes the player's $8. Find the expected value E(x) to the player for one play of the game. If x is the gain to a player in a game of chance, then E(x) is usually negative. This value gives the average amount per game the player can expect to lose.

The expected value is $ −0.42.
(Round to the nearest cent as needed.)

Score: 0 of 1 pt | 39 of 45 (38 complete) | **HW Score:** 84.44%, 38 of 45 pts

4.1-20 | Question Help

One thousand tickets are sold at $5 each. One ticket will be randomly selected and the winner will receive a color television valued at $350. What is the expected value for a person that buys one ticket? Round the answer to the nearest cent.

- A. $4.65
- B. −$4.65
- C. $1.00
- D. −$1.00

Score: 0 of 1 pt | 40 of 45 (39 complete) | **HW Score:** 86.67%, 39 of 45 pts

4.2-13 | Question Help

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most three boys in ten births.

- A. 0.003
- B. 0.300
- C. 0.172
- D. 0.333

Score: 0 of 1 pt | 41 of 45 (40 complete) | **HW Score:** 88.89%, 40 of 45 pts

4.2-14 | Question Help

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

- A. 0.200
- B. 0.800
- C. 0.055
- D. 0.080

Score: 0 of 1 pt | 42 of 45 (41 complete) | **HW Score:** 91.11%, 41 of 45 pts

4.2-17 | Question Help

A recent survey found that 70% of all adults over 50 wear glasses for driving. In a random sample of 10 adults over 50, what is the probability that at least six wear glasses?

- A. 0.006
- B. 0.700
- C. 0.200
- D. 0.850

Score: 0 of 1 pt

43 of 45 (42 complete)

*5.3.RA-1

Which of the following is not a requirement of the binomial probability distribution?

Choose the correct answer below.

- A. The procedure has a fixed number of trials.
- B. The probability of a success remains the same in all trials.
- C. The trials must be dependent.
- D. Each trial must have all outcomes classified into two categories.

Score: 0 of 1 pt

44 of 45 (43 complete)

HW Score: 95.56%, 43 of 45 pts

*5.3-4

Question Help

Determine whether the given procedure results in a binomial distribution. If not, state the reason why.

Choosing 5 marbles from a box of 40 marbles (20 purple, 12 red, and 8 green) one at a time without replacement, keeping track of the number of red marbles chosen.

- A. Not binomial: there are more than two outcomes for each trial.
- B. Not binomial: there are too many trials.
- C. Not binomial: the trials are not independent.
- D. Procedure results in a binomial distribution.

Score: 0 of 1 pt

45 of 45 (44 complete)

HW Score: 97.78%, 44 of 45 pts

*5.3-19

Question Help

In a study, 36% of adults questioned reported that their health was excellent. A researcher wishes to study the health of people living close to a nuclear power plant. Among 14 adults randomly selected from this area, only 3 reported that their health was excellent. Find the probability that when 14 adults are randomly selected, 3 or fewer are in excellent health. Round to three decimal places.

- A. 0.073
- B. 0.125
- C. 0.198
- D. 0.133

Quiz: Module 3: Probability And Binomial Probability

This Question: 1 pt — 1 of 22 (0 complete)

What is the difference between an outcome and an event?

Choose the correct answer below.

- A. An outcome is the result of a single probability experiment. An event is the set of all possible outcomes.
- B. An event is the result of a single probability experiment. An outcome is the set of all possible events.
- C. An outcome is the result of a single probability experiment. An event is a set of one or more possible outcomes.
- D. An event is the result of a single probability experiment. An outcome is a set of one or more possible events.

This Question: 1 pt — 2 of 22 (1 complete) — **This Quiz:** 22 pts possible

Fourteen of the 200 digital video recorders (DVRs) in an inventory are known to be defective. What is the probability you randomly select a DVR that is not defective?

The probability is 0.93.
(Type an integer or a decimal. Do not round.)

This Question: 1 pt — 3 of 22 (2 complete)

Identify the sample space of the probability experiment and determine the number of outcomes in the sample spa

Randomly choosing a number from the odd numbers between 1 and 9, inclusive

The sample space is {1, 3, 5, 7, 9}.
(Use a comma to separate answers as needed. Use ascending order.)

There are 5 outcome(s) in the sample space.

This Question: 1 pt | 4 of 22 (3 complete) | Thi

Identify the sample space of the probability experiment and determine the number of outcomes in the sample space. Draw a tree diagram.

Determining a person's grade (freshman (F), sophmore (So), junior (J), senior (Se)) and gender (male (M), female (F))

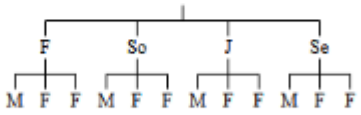
Identify the sample space.

- A. {FM, FF, SoM, SoF, JM, JF}
- B. {FM, FF, FF, SoM, SoF, SoF, JM, JF, JF}
- C. {FM, FF, FF, SoM, SoF, SoF, JM, JF, JF, SeM, SeF, SeF}
- D. {FM, FF, SoM, SoF, JM, JF, SeM, SeF}

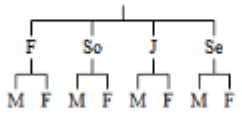
There are 8 outcomes in the sample space.

Choose the correct tree diagram below.

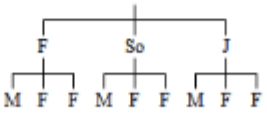
A.



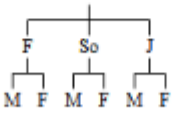
B.



C.



D.



This Question: 1 pt | 5 of 22 (4 complete) | This Quiz

Classify the following statement as an example of classical probability, empirical probability, or subjective probability. Explain your reasoning.

An analyst feels that a certain stock's probability of decreasing in price over the next month is 0.75.

This is an example of subjective probability, since the stated probability is most likely based on intuition, an educated guess, or an estimate.

This Question: 1 pt | 6 of 22 (5 complete) | **This Quiz:** 22 pts possible

The access code for a garage door consists of three digits. Each digit can be any number from 1 through 9, and each digit can be repeated. Complete parts (a) through (c).

(a) Find the number of possible access codes.
(b) What is the probability of randomly selecting the correct access code on the first try?
(c) What is the probability of not selecting the correct access code on the first try?

(a) Find the number of possible access codes.

The number of different codes available is 729.

(b) What is the probability of randomly selecting the correct access code on the first try?

The probability of randomly selecting the correct access code is 0.001.
(Round to three decimal places as needed.)

(c) What is the probability of not selecting the correct access code on the first try?

The probability of not selecting the correct access code is 0.999.

This Question: 1 pt

7 of 22 (6 complete)

The accompanying table shows the numbers of male and female students in a particular country who received bachelor's degree
Complete parts (a) and (b) below.

Click the icon to view the data on business degrees.

(a) Find the probability that a randomly selected student is male, given that the student received a business degree.

The probability that a randomly selected student is male, given that the student received a business degree, is 0.534.
(Round to three decimal places as needed.)

(b) Find the probability that a randomly selected student received a business degree, given that the student is female.

The probability that a randomly selected student received a business degree, given that the student is female, is 0.157.
(Round to three decimal places as needed.)

Business Graduates

	Business degrees	Nonbusiness degrees	Total
Male	191,223	610,288	801,511
Female	166,695	894,730	1,061,425
Total	357,918	1,505,018	1,862,936

More

This Question: 1 pt

10 of 22 (9 complete)

Decide if the events A and B are mutually exclusive or not mutually exclusive. A date in Philadelphia is selected.
A: It rains that day.
B: It snows that day.

- (●) not mutually exclusive
- ( ) mutually exclusive

This Question: 1 pt

11 of 22 (10 complete)

This Quiz: 22 pts possible

The table lists the smoking habits of a group of college students.

Sex	Non-smoker	Regular Smoker	Heavy Smoker	Total
Man	135	54	5	194
Woman	187	21	6	214
Total	322	75	11	408

If a student is chosen at random, find the probability of getting someone who is a man or a non-smoker. Round your answer to three decimal places.

- A. 0.941
- B. 0.816
- C. 0.934
- D. 0.948

This Question: 1 pt

12 of 22 (11 complete)

The distribution of Master's degrees conferred by a university is listed in the table. Assume that a student majors in only one subject.

Major	Frequency
Mathematics	226
English	210
Engineering	86
Business	176
Education	222

What is the probability that a randomly selected student with a Master's degree majored in English or Mathematics? Round your answer to three decimal places.

- A. 0.526
- B. 0.246
- C. 0.474
- D. 0.228

This Question: 1 pt

13 of 22 (12 complete)

This Quiz: 22 pts possible

In a survey of U.S. adults with a sample size of 2084, 353 said Franklin Roosevelt was the best president since World War II. Two U.S. adults are selected at random from this sample without replacement. Complete parts (a) through (d).

(a) Find the probability that both adults say Franklin Roosevelt was the best president since World War II.

The probability that both adults say Franklin Roosevelt was the best president since World War II is 0.029.
(Round to three decimal places as needed.)

(b) Find the probability that neither adult says Franklin Roosevelt was the best president since World War II.

The probability that neither adult says Franklin Roosevelt was the best president since World War II is 0.690.
(Round to three decimal places as needed.)

(c) Find the probability that at least one of the two adults says Franklin Roosevelt was the best president since World War II.

The probability that at least one of the two adults says Franklin Roosevelt was the best president since World War II is 0.310.
(Round to three decimal places as needed.)

(d) Which of the events can be considered unusual? Explain. Select all that apply.

- ☐ The event in part (c) is unusual because its probability is less than or equal to 0.05.
- ☐ None of these events are unusual.
- ☐ The event in part (b) is unusual because its probability is less than or equal to 0.05.
- ☑ The event in part (a) is unusual because its probability is less than or equal to 0.05.

Quiz: Module 3: Probability And Binomial Probability Distribut

This Question: 1 pt

14 of 22 (13 complete)

Determine the written description of the complement of the given event.

When nine televisions are received, at least one of them is free of defects.

Choose the correct answer below.

- A. All of them are free of defects
- B. More than one of them are defective
- C. None of them are defective
- D. [illegible] are defective

Quiz: Module 3: Probability And Binomial Probability Distributi

This Question: 1 pt

15 of 22 (14 complete)

The following table contains data from a study of two airlines which fly to Small Town, USA.

	Number of flights which were on time	Number of flights which were late
Podunk Airlines	33	6
Upstate Airlines	43	5

If one of the 87 flights is randomly selected, find the probability that the flight selected arrived on time given that it was an Upstate Airlines flight. Expre

- A. $\frac{43}{48}$
- B. $\frac{11}{76}$
- C. $\frac{43}{87}$
- D. None of the above is correct.

This Question: 1 pt

16 of 22 (15 complete)

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the mean number favoring the substation?

- A. 10
- B. 8
- C. 12
- D. 15

This Question: 1 pt

17 of 22 (16 complete)

This Quiz: 22 pts pos

According to government data, the probability that a woman between the ages of 25 and 29 was never married is 40%. In a random survey of 10 women in this age group, what is the probability that at least eight were married?

- A. 0.161
- B. 0.167
- C. 1.002
- D. 0.013

This Question: 1 pt

18 of 22 (17 complete)

Sixty-five percent of men consider themselves knowledgeable football fans. If 13 men are randomly selected, find the probability that exactly four of them will consider themselves knowledgeable fans.

- A. 0.308
- B. 0.010
- C. 0.650
- D. 0.222

This Question: 1 pt

19 of 22 (18 complete)

What is the significance of the mean of a probability distribution?

Choose the correct answer below.

- A. It represents the most likely possible outcome.
- B. It can never be negative.
- C. It is the expected value of a discrete random variable.
- D. It gives information about how the outcomes vary.

This Question: 1 pt

20 of 22 (19 complete)

Decide whether the random variable x is discrete or continuous.

x represents the number of rainy days in the month of July in Orlando, Florida.

Is the random variable x discrete or continuous? Choose the correct answer below.

- Discrete
- Continuous

This Question: 1 pt

21 of 22 (20 complete)

Decide whether the random variable x is discrete or continuous.

x represents the volume of milk taken from one cow for a day.

Is the random variable x discrete or continuous? Choose the correct answer below.

- Continuous
- Discrete

This Question: 1 pt

A frequency distribution is shown below. Complete parts (a) and (b).

The number of televisions per household in a small town

Televisions	0	1	2	3
Households	26	445	724	1410

(a) Use the frequency distribution to construct a probability distribution.

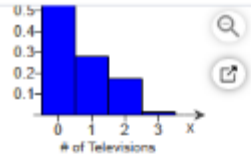
x	P(x)
0	0.010
1	0.171
2	0.278
3	0.541

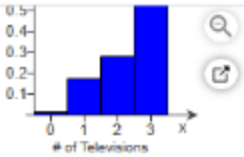
(Round to three decimal places as needed.)

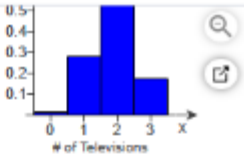
A frequency distribution is shown below. Complete parts (a) and (b).

The number of televisions per household in a small town

Televisions	0	1	2	3
Households	26	445	724	1410







Describe the histogram's shape. Choose the correct answer below.

- ○ symmetric
- ◉ skewed left
- ○ skewed right

Quiz Summary

Name:	Module 3: Probability And Binomial Probability Distribution - Quiz
Due:	07/11/21 11:59pm
Date Submitted:	07/10/21 10:34pm
Time Spent:	54m 20s
Score:	**100% (22/22 pts)**

This quiz **will** affect your Study Plan score.

Questions: 22	Correct: 22	Partial Credit: 0	Incorrect: 0	Incomplete: 0

✓ Question 1 (1/1)	✓ Question 2 (1/1)	✓ Question 3 (1/1)	✓ Question 4 (1/1)
✓ Question 5 (1/1)	✓ Question 6 (1/1)	✓ Question 7 (1/1)	✓ Question 8 (1/1)
✓ Question 9 (1/1)	✓ Question 10 (1/1)	✓ Question 11 (1/1)	✓ Question 12 (1/1)
✓ Question 13 (1/1)	✓ Question 14 (1/1)	✓ Question 15 (1/1)	✓ Question 16 (1/1)
✓ Question 17 (1/1)	✓ Question 18 (1/1)	✓ Question 19 (1/1)	✓ Question 20 (1/1)
✓ Question 21 (1/1)	✓ Question 22 (1/1)		

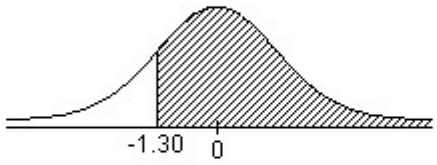
Module 4: Normal Probability Distribution - Homework

Score: 0 of 1 pt

1 of 40 (0 complete)

5.1-3

Find the area of the indicated region under the standard normal curve.



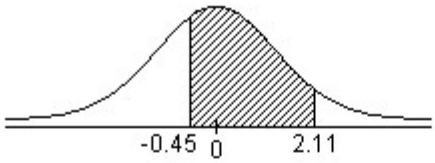
- A. 0.9177
- B. 0.0968
- C. 0.0823
- D. 0.9032

Score: 0 of 1 pt

2 of 40 (1 complete)

5.1-4

Find the area of the indicated region under the standard normal curve.



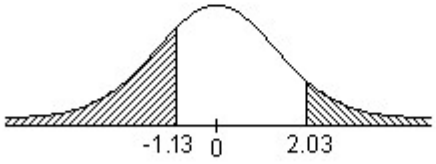
- A. 1.3090
- B. 0.3090
- C. 0.6562
- D. 0.3438

Score: 0 of 1 pt

3 of 40 (2 complete)

5.1-5

Find the area of the indicated region under the standard normal curve.



- A. 0.1504
- B. 0.0212
- C. 0.1292
- D. 0.8489

Score: 0 of 1 pt

4 of 40 (3 complete)

5.1-8

Find the area under the standard normal curve to the right of $z = -1.25$.

- A. 0.7193
- B. 0.5843
- C. 0.6978
- D. 0.8944 (selected)

Score: 0 of 1 pt

5 of 40 (4 complete)

HW Score: 10%, 4 of 40 pts

5.2-1

Question Help

Assume that the random variable X is normally distributed, with mean $\mu = 50$ and standard deviation $\sigma = 12$. Compute the probability $P(X < 65)$.

- 0.1056
- 0.8944 (selected)
- 0.8849
- 0.9015

Score: 0 of 1 pt

6 of 40 (5 complete)

HW Scor

5.2-2

Assume that the random variable X is normally distributed, with mean $\mu = 90$ and standard deviation $\sigma = 5$. Compute the probability $P(X > 94)$.

- 0.2119 (selected)
- 0.2420
- 0.1977
- 0.7881

Score: 0 of 1 pt

7 of 40 (6 complete)

HW Score: 15%

5.3-9

Question He

IQ test scores are normally distributed with a mean of 100 and a standard deviation of 15. Find the x-score that corresponds to a z-score of 2.33.

- A. 139.55
- B. 125.95
- C. 134.95 (selected)
- D. 142.35

Score: 0 of 1 pt | 8 of 40 (7 complete) | **HW Score:** 17.5%, 7 of 40 pts

5.3-10

Question Help

The scores on a mathematics exam have a mean of 67 and a standard deviation of 5. Find the x-value that corresponds to the z-score −2.33. Round the answer to the nearest tenth.

- (●) A. 55.4
- ( ) B. 78.7
- ( ) C. 62.0
- ( ) D. 64.7

Score: 0 of 1 pt | 9 of 40 (8 complete) | **HW Score:** 20%, 8 of 40 pts

5.4.41

Question Help

About 73% of all female heart transplant patients will survive for at least 3 years. Eighty female heart transplant patients are randomly selected. What is the probability that the sample proportion surviving for at least 3 years will be less than 65%? Assume the sampling distribution of sample proportions is a normal distribution. The mean of the sample proportion is equal to the population proportion and the standard deviation is equal to $\sqrt{\frac{pq}{n}}$.

The probability that the sample proportion surviving for at least 3 years will be less than 65% is 0.0535. (Round to four decimal places as needed.)

Score: 0 of 1 pt | 10 of 40 (9 complete) | **HW Score:** 22.5%, 9 of 40 pts

5.4.31-T

Question Help

The mean percent of childhood asthma prevalence in 43 cities is 2.21%. A random sample of 31 of these cities is selected. What is the probability that the mean childhood asthma prevalence for the sample is greater than 2.4%? Interpret this probability. Assume that $\sigma = 1.21\%$.

The probability is 0.1910.
(Round to four decimal places as needed.)

Interpret this probability. Select the correct choice below and fill in the answer box to complete your choice.
(Round to two decimal places as needed.)

- ( ) A. About ____ % of samples of 31 cities will have a mean childhood asthma prevalence greater than 2.21%.
- (●) B. About 19.10 % of samples of 31 cities will have a mean childhood asthma prevalence greater than 2.4%.
- ( ) C. About ____ % of samples of 43 cities will have a mean childhood asthma prevalence greater than 2.4%.

Score: 0 of 1 pt | 11 of 40 (10 complete) | **HW Score:** 25%, 10 of 40 pts

5.4.17

Question Help

The population mean and standard deviation are given below. Find the required probability and determine whether the given sample mean would be considered unusual.

For a sample of $n = 75$, find the probability of a sample mean being greater than 228 if $\mu = 227$ and $\sigma = 3.8$.

For a sample of $n = 75$, the probability of a sample mean being greater than 228 if $\mu = 227$ and $\sigma = 3.8$ is 0.0113.
(Round to four decimal places as needed.)

Would the given sample mean be considered unusual?

The sample mean would be considered unusual because it does not lie within the range of a usual event, namely within 2 standard deviations of the mean of the sample means.

Score: 0 of 1 pt | 12 of 40 (11 complete) | **HW Score:** 27.5%, 11 of 40 pts

5.4-12

Question Help

Assume that the salaries of elementary school teachers in the United States are normally distributed with a mean of $32,000 and a standard deviation of $3000. If 100 teachers are randomly selected, find the probability that their mean salary is greater than $32,500.

- ( ) A. 0.1312
- ( ) B. 0.9525
- ( ) C. [illegible]

Score: 0 of 1 pt | 13 of 40 (12 complete) | **HW Score:** 30%, 12 of 40 pts

5.4-9

Question Help

Assume that the heights of women are normally distributed with a mean of 63.6 inches and a standard deviation of 2.5 inches. If 75 women are randomly selected, find the probability that they have a mean height between 63 and 65 inches.

- A. 0.2119
- B. 0.0188
- C. 0.9811
- D. 0.3071

Score: 0 of 1 pt | 14 of 40 (13 complete) | **HW Score:** 32.5%, 13 of 40 pts

5.4-6

Question Help

The weights of people in a certain population are normally distributed with a mean of 159 lb and a standard deviation of 22 lb. Find the mean and standard error of the mean for this sampling distribution when using random samples of size 2. Round the answers to the nearest hundredth.

- A. 159.00, 2.00
- B. 159.00, 11.00
- C. 159.00, 15.56
- D. 159.00, 22.00

Score: 0 of 1 pt | 15 of 40 (14 complete) | **HW Score:** 35%, 14 of 40 pts

5.4-5

Question Help

Use the Central Limit Theorem to find the mean and standard error of the mean of the indicated sampling distribution.

The monthly rents for studio apartments in a certain city have a mean of $950 and a standard deviation of $200. Random samples of size 60 are drawn from the population and the mean of each sample is determined. Round the answers to the nearest hundredth.

- A. $950.00, $25.82
- B. $122.64, $25.82
- C. $122.64, $200.00
- D. $950.00, $3.33

Score: 0 of 1 pt | 16 of 40 (15 complete) | **HW Score:** 37.5%, 15 of 40 pts

5.4-4

Question Help

Use the Central Limit Theorem to find the mean and standard error of the mean of the indicated sampling distribution.

The amounts of time employees of a telecommunications company have worked for the company are normally distributed with a mean of 5.80 years and a standard deviation of 1.80 years. Random samples of size 16 are drawn from the population and the mean of each sample is determined. Round the answers to the nearest hundredth.

- A. 1.45 years, 1.80 years
- B. 5.80 years, 0.45 years
- C. 1.45 years, 0.45 years
- D. 5.80 years, 0.11 years

Score: 0 of 1 pt | 17 of 40 (16 complete) | **HW Score:** 40%, 16 of 40 pts

5.4-3

Question Help

The distribution of room and board expenses per year at a four-year college is normally distributed with a mean of $5850 and standard deviation of $1125. Random samples of size 20 are drawn from this population and the mean of each sample is determined. Which of the following mean expenses would be considered unusual?

- A. $5180

5.4-3

Question Help

The distribution of room and board expenses per year at a four-year college is normally distributed with a mean of $5850 and standard deviation of $1125. Random samples of size 20 are drawn from this population and the mean of each sample is determined. Which of the following mean expenses would be considered unusual?

- A. $5180
- B. $6180
- C. $6350
- D. none of these

Score: 0 of 1 pt

18 of 40 (17 complete)

5.4-1

What happens to the mean and standard deviation of the distribution of sample means as the size of the sample decreases?

- A. The mean of the sample means increases and the standard error stays constant.
- B. The mean of the sample means stays constant and the standard error decreases.
- C. The mean of the sample means stays constant and the standard error increases.
- D. The mean of the sample means decreases and the standard error increases.

Score: 0 of 1 pt

19 of 40 (19 complete)

HW Score: 45%, 18 of 40 pts

5.4.6

Question Help

Determine whether the statement is true or false. If it is false, rewrite it as a true statement.

As the size of a sample increases, the standard deviation of the distribution of sample means increases.

Choose the correct choice below.

- A. This statement is false. A true statement is, "As the size of a sample increases, the standard deviation of the distribution of sample means decreases."
- B. This statement is false. A true statement is, "As the size of a sample decreases, the standard deviation of the distribution of sample means decreases."
- C. This statement is false. A true statement is, "As the size of a sample increases, the standard deviation of the distribution of sample means does not change."
- D. This statement is true.

Score: 0 of 1 pt

20 of 40 (19 complete)

5.4.5

Determine whether the statement is true or false. If it is false, rewrite it as a true statement.

As the size of a sample increases, the mean of the distribution of sample means increases.

Choose the correct answer below.

- A. False. As the size of a sample increases, the mean of the distribution of sample means decreases.
- B. False. As the size of a sample increases, the mean of the distribution of sample means does not change.
- C. True.

Score: 0 of 1 pt | 21 of 40 (20 complete) | **HW Score:** 50%, 20 of 40 pts

5.4.3

Question Help

A population has a mean $\mu = 87$ and a standard deviation $\sigma = 20$. Find the mean and standard deviation of a sampling distribution of sample means with sample size $n = 237$.

$\mu_{\bar{x}} =$ 87 (Simplify your answer.)

$\sigma_{\bar{x}} =$ 1.299 (Type an integer or decimal rounded to three decimal places as needed.)

Score: 0 of 1 pt | 22 of 40 (21 complete) | **HW Score:** 52.5%, 21 of 40 pts

5.4.1

Question Help

A population has a mean $\mu = 158$ and a standard deviation $\sigma = 22$. Find the mean and standard deviation of the sampling distribution of sample means with sample size $n = 50$.

The mean is $\mu_{\bar{x}} =$ 158, and the standard deviation is $\sigma_{\bar{x}} =$ 3.111.

(Round to three decimal places as needed.)

Score: 0 of 1 pt | 23 of 40 (22 complete) | **HW Score:** 55%, 22 of 40 pts

5.4.8

Question Help

Determine whether the statement is true or false. If it is false, rewrite it as a true statement.

If the size of a sample is at least 30, then you can use z-scores to determine the probability that a sample mean falls in a given interval of the sampling distribution.

Choose the correct choice below.

- A. This statement is false. A true statement is, "There is not any size of a sample that allows you to use z-scores to determine the probability that a sample mean falls in a given interval of the sampling distribution."
- B. This statement is true.
- C. This statement is false. A true statement is, "If the size of a sample is at least 50, then you can use z-scores to determine the probability that a sample mean falls in a given interval of the sampling distribution."
- D. This statement is false. A true statement is, "If the size of a sample is at least 10, then you can use z-scores to determine the probability that a sample mean falls in a given interval of the sampling distribution."

✔ Nice work!

This statement is true. By the definition of the Central Limit Theorem, if sample of size n, where $n \geq 30$ are drawn from any population with a mean μ and a standard deviation σ, then the sampling distribution of sample means approximates a normal distribution. The greater the sample size, the greater the approximation.

Score: 0 of 1 pt | 24 of 40 (23 complete)

5.4.7

Determine whether the statement is true or false. If it is false, rewrite it as a true statement.

A sampling distribution is normal only if the population is normal.

Choose the correct answer below.

- A. The statement is false. A sampling distribution is normal if either $n \geq 30$ or the population is normal.
- B. The statement is false. A sampling distribution is never normal.
- C. The statement is true.
- D. The statement is false. A sampling distribution is normal only if $n \geq 30$.

✔ Good job!

Next Question

Score: 1 of 1 pt

25 of 40 (25 complete)

*6.5-1

If a histogram of a sample of men's ages is skewed, what do you expect to see in the normal quantile plot?

- Points are following a straight-line pattern.
- Points are not following a straight-line pattern.

Score: 0 of 1 pt

26 of 40 (25 complete)

HW Score: 62.5%, 25 of 40 pt

*6.5.RA-3

Question Help

Which of the following is NOT true in regards to using a normal quantile plot to determine whether or not a distribution is normal?

Choose the correct answer below.

- A. The population distribution is normal if the pattern of points is reasonably close to a straight line.
- B. If the plot is bell-shaped, the population distribution is normal.
- C. The criteria for interpreting a normal quantile plot should be used more strictly for large samples.
- D. The population distribution is not normal if the points show some systematic pattern that is not a straight-line pattern.

Excellent!

This is unrelated. A normal quantile plot is a graph of points. It cannot be bell-shaped.

Score: 0 of 1 pt

27 of 40 (26 complete)

HW Score: 65%, 26 of 40 pts

*6.5.RA-2

Question Help

Fill in the blank.

A _____ is a graph of points (x,y) where each x-value is from the original set of sample data, and each y-value is the corresponding z-score that is a quantile value expected from the standard normal distribution.

A normal quantile plot is a graph of points (x,y) where each x-value is from the original set of sample data, and each y-value is the corresponding z-score that is a quantile value expected from the standard normal distribution.

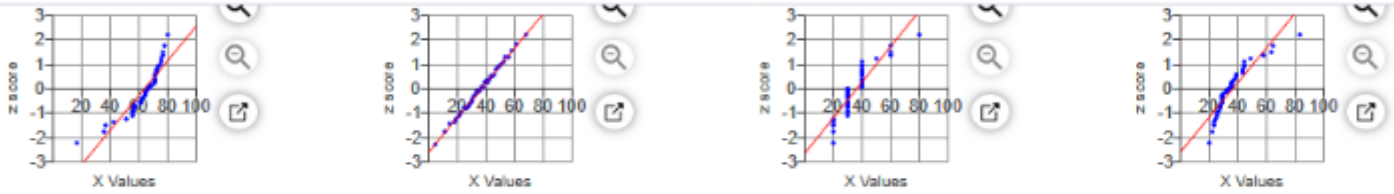
Score: 0 of 1 pt | 28 of 40 (27 complete) | **HW Score:** 67.5%, 27 of 40 pts

*6.5.14-E

Question Help

Use a calculator or computer software to generate a normal quantile plot for the data about the ages of actresses at the times they won a particular award in the accompanying table. Then determine whether the data come from a normally distributed population.

Click the icon to view the data on the ages of actresses at the times they won a particular award.



Determine whether the data come from a normally distributed population. Choose the correct answer below.

- A. The distribution is normal. The points show a systematic pattern that is not a straight-line pattern.
- B. The distribution is not normal. The points are reasonably close to a straight line.
- C. The distribution is normal. The points are reasonably close to a straight line.
- D. The distribution is not normal. The points show a systematic pattern that is not a straight-line pattern.

Score: 0 of 1 pt | 29 of 40 (28 complete) | **HW Score:** 70%, 28 of 40 pts

*6.5.13-T

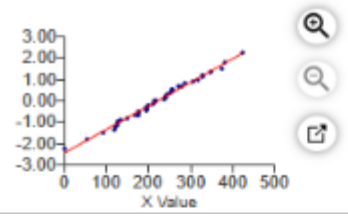
Question Help

Use a calculator or computer software to generate a normal quantile plot for the data in the accompanying table. Then determine whether the data come from a normally distributed population.

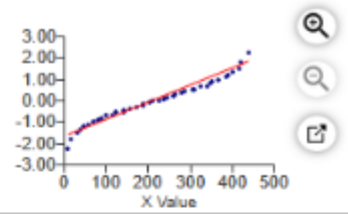
Click the icon to view the data set.

Generate a normal quantile plot for the data. Choose the correct graph below.

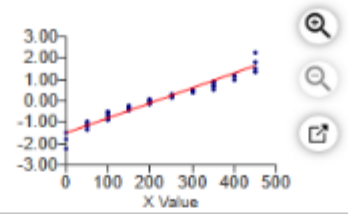
A.



B.



C.



Determine whether the data come from a normally distributed population. Choose the correct answer below.

- A. The distribution is not normal. The points show a systematic pattern that is not a straight-line pattern.
- B. The distribution is normal. The points are reasonably close to a straight line and donot show a systematic pattern that is not a straight-line pattern.
- C. The distribution is not normal. The points are reasonably close to a straight line.
- D. The distribution is normal. The points show a systematic pattern that is not a straight-line pattern.

The population distribution is normal if the pattern of the points on a normal quantile plot is reasonably close to a straight line and the points do not show some systematic pattern that is not a straight-line pattern. The population distribution is not normal if the points do not lie reasonably close to a straight line or the points show some systematic pattern that is not a straight-line pattern.

Determine whether the data come from a normally distributed population. Choose the correct answer below.

- A. The distribution is not normal. The points show a systematic pattern that is not a straight-line pattern.
- B. The distribution is normal. The points are reasonably close to a straight line and donot show a systematic pattern that is not a straight-line pattern.
- C. The distribution is not normal. The points are reasonably close to a straight line.
- D. The distribution is normal. The points show a systematic pattern that is not a straight-line pattern.

Score: 0 of 1 pt | 30 of 40 (29 complete) | **HW Score:** 72.5%, 29 of 40 pts

*6.5.11-T

Question Help

Refer to the data set below (body mass index of men) and determine whether the requirement of a normal distribution is satisfied. Assume that this requirement is loose in the sense that the population distribution need not be exactly normal, but it must be a distribution that is basically symmetric with only one mode.

24.4 24.6 23.3 26.7 33.6 23.0 30.8 23.9 25.1 26.4
31.9 27.4 26.8 28.3 25.6 21.6 27.8 20.9 19.5 26.1

Is the requirement of a normal distribution satisfied?

- A. Yes. The points in the normal quantile plot exhibit some systematic pattern that is not a straight-line pattern.
- B. Yes. The points in the normal quantile plot lie reasonably close to a straight line.
- C. No. The histogram of the data is not bell shaped. There is also more than one outlier.
- D. No. The points in the normal quantile plot do not lie close to a straight line.

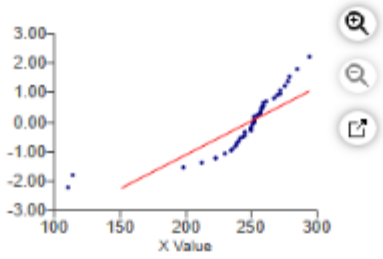
Score: 0 of 1 pt | 31 of 40 (30 complete) | **HW Score:** 75%, 30 of 40 pts

*6.5.5

Question Help

The normal quantile plot shown to the right represents duration times (in seconds) of eruptions of a certain geyser from the accompanying data set. Examine the normal quantile plot and determine whether it depicts sample data from a population with a normal distribution.

Click the icon to view the data set.



Choose the correct answer below.

- A. The distribution is not normal. The points are not reasonably close to a straight line.
- B. The distribution is not normal. The points do not show any systematic pattern.
- C. The distribution is normal. The points are reasonably close to a straight line and do not show a systematic pattern that is not a straight-line pattern.
- D. The distribution is normal. The points show a systematic pattern that is not a straight-line pattern.

Score: 0 of 1 pt | 32 of 40 (31 complete) | **HW S**

*6.4.RA-3

Which of the following is NOT a conclusion of the Central Limit Theorem?

Choose the correct answer below.

- A. The distribution of the sample data will approach a normal distribution as the sample size increases.
- B. The mean of all sample means is the population mean μ.
- C. The distribution of the sample means $\bar{x}$ will, as the sample size increases, approach a normal distribution.
- D. The standard deviation of all sample means is the population standard deviation divided by the square root of the sample size.

The Central Limit Theorem applies to the sampling distribution of $\bar{x}$ and not to the distribution of the sample data.

Score: 0 of 1 pt

33 of 40 (32 complete)

*6.4.RA-2

Fill in the blank.

The standard deviation of the distribution of sample means is _____.

The standard deviation of the distribution of sample means is $\frac{\sigma}{\sqrt{n}}$.

Score: 0 of 1 pt

34 of 40 (33 complete)

HW Score: 82.5%, 33 of 40 pts

*6.4.RA-1

Question Help

Fill in the blank.

The _____ tells us that for a population with any distribution, the distribution of the sample means approaches a normal distribution as the sample size increases.

The Central Limit Theorem tells us that for a population with any distribution, the distribution of the sample means approaches a normal distribution as the sample size increases.

The Central Limit Theorem states that if the sample size is large enough, the distribution of sample means can be approximated by a normal distribution, even if the original population is not normally distributed.

Score: 0 of 1 pt

35 of 40 (34 complete)

HW Score: 85%, 34 of 40 pts

*6.4.13-T

Question Help

A ski gondola carries skiers to the top of a mountain. Assume that weights of skiers are normally distributed with a mean of 190 lb and a standard deviation of 36 lb. The gondola has a stated capacity of 25 passengers, and the gondola is rated for a load limit of 3500 lb. Complete parts (a) through (d) below.

a. Given that the gondola is rated for a load limit of 3500 lb, what is the maximum mean weight of the passengers if the gondola is filled to the stated capacity of 25 passengers?

The maximum mean weight is 140 lb.
(Type an integer or a decimal. Do not round.)

b. If the gondola is filled with 25 randomly selected skiers, what is the probability that their mean weight exceeds the value from part (a)?

The probability is 1.
(Round to four decimal places as needed.)

c. If the weight assumptions were revised so that the new capacity became 20 passengers and the gondola is filled with 20 randomly selected skiers, what is the probability that their mean weight exceeds 175 lb, which is the maximum mean weight that does not cause the total load to exceed 3500 lb?

The probability is 0.9688.

d. Is the new capacity of 20 passengers safe?

Since the probability of overloading is over 50%, the new capacity does not appear to be safe enough.

Score: 0 of 1 pt | 36 of 40 (35 complete) | **HW Score:** 87.5%, 35 of 40 pts

*6.4.7-T

Question Help

Assume that females have pulse rates that are normally distributed with a mean of $\mu = 75.0$ beats per minute and a standard deviation of $\sigma = 12.5$ beats per minute. Complete parts (a) through (c) below.

a. If 1 adult female is randomly selected, find the probability that her pulse rate is between 71 beats per minute and 79 beats per minute.

The probability is 0.251.
(Round to four decimal places as needed.)

b. If 25 adult females are randomly selected, find the probability that they have pulse rates with a mean between 71 beats per minute and 79 beats per minute.

The probability is 0.8904.
(Round to four decimal places as needed.)

c. Why can the normal distribution be used in part (b), even though the sample size does not exceed 30?

- (●) A. Since the original population has a normal distribution, the distribution of sample means is a normal distribution for any sample size.
- ( ) B. Since the distribution is of individuals, not sample means, the distribution is a normal distribution for any sample size.
- ( ) C. Since the mean pulse rate exceeds 30, the distribution of sample means is a normal distribution for any sample size.
- ( ) D. Since the distribution is of sample means, not individuals, the distribution is a normal distribution for any sample size.

Score: 0 of 1 pt | 37 of 40 (36 complete)

*6.4.6-T

The overhead reach distances of adult females are normally distributed with a mean of 202.5 cm and a standard deviation of 8 cm.
a. Find the probability that an individual distance is greater than 215.90 cm.
b. Find the probability that the mean for 20 randomly selected distances is greater than 201.00 cm.
c. Why can the normal distribution be used in part (b), even though the sample size does not exceed 30?

a. The probability is 0.0470.
(Round to four decimal places as needed.)

b. The probability is 0.7991.
(Round to four decimal places as needed.)

c. Choose the correct answer below.

- ( ) A. The normal distribution can be used because the finite population correction factor is small.
- ( ) B. The normal distribution can be used because the probability is less than 0.5
- ( ) C. The normal distribution can be used because the mean is large.
- (●) D. The normal distribution can be used because the original population has a normal distribution.

Score: 0 of 1 pt | 38 of 40 (37 complete) | **HW Score:** 92.5%, 37 of 40 pts

*6.4.1 | Question Help

A researcher collects a simple random sample of grade-point averages of statistics students, and she calculates the mean of this sample. Under what conditions can that sample mean be treated as a value from a population having a normal distribution?

Select all that apply.

- [x] A. If the population of grade-point averages has a normal distribution.
- [x] B. The sample has more than 30 grade-point averages.
- [ ] C. The researcher collects more than 30 samples.
- [ ] D. If the population of statistics students has a normal distribution.

Score: 0 of 1 pt | 39 of 40 (38 complete)

*6.2-22

The lengths of human pregnancies are normally distributed with a mean of 268 days and a standard deviation of 15 days. What is the probability that a pregnancy lasts at least 300 days?

- (•) A. 0.0166
- ( ) B. 0.0179
- ( ) C. 0.4834
- ( ) D. 0.0332
- ( ) E. 0.9834

Score: 0 of 1 pt | 40 of 40 (39 complete) | **HW Score:** 97.5%, 39 of 40

*6.2-13 | Question Help

Use the empirical rule to solve the problem.

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 120 mmHg and a standard deviation of 12 mmHg. What percentage of 18-year-old women have a systolic blood pressure that lies within 3 standard deviations of the mean?

- (•) A. 99.7%
- ( ) B. 68%
- ( ) C. 95%
- ( ) D. 67%
- ( ) E. 99.99%

Quiz: Module 4: Normal Probability Distribution - Quiz

This Question: 1 pt | 1 of 17 (0 complete) | **This Quiz:** 17 pts possi

The mean percent of childhood asthma prevalence in 43 cities is 2.06%. A random sample of 31 of these cities is selected. What is the probability that the mean childhood asthma prevalence for the sample is greater than 2.4%? Interpret this probability. Assume that $\sigma = 1.25\%$.

The probability is 0.0650.
(Round to four decimal places as needed.)

Interpret this probability. Select the correct choice below and fill in the answer box to complete your choice.
(Round to two decimal places as needed.)

- A. About [ ]% of samples of 31 cities will have a mean childhood asthma prevalence greater than 2.06%.
- B. About 6.50% of samples of 31 cities will have a mean childhood asthma prevalence greater than 2.4%
- C. About [ ]% of samples of 43 cities will have a mean childhood asthma prevalence greater than 2.4%.

This Question: 1 pt | 2 of 17 (1 complete) | **This Quiz:** 17 pts possib

About 70% of all female heart transplant patients will survive for at least 3 years. Ninety female heart transplant patients are randomly selected. What is the probability that the sample proportion surviving for at least 3 years will be less than 67%? Assume the sampling distribution of sample proportions is a normal distribution. The mean of the sample proportion is equal to the population proportion and the standard deviation is equal to $\sqrt{\frac{pq}{n}}$.

The probability that the sample proportion surviving for at least 3 years will be less than 67% is 0.2673. (Round to four decimal places as needed.)

This Question: 1 pt | 3 of 17 (2 complete) | **This Quiz:** 17 pts pos

A standardized exam's scores are normally distributed. In a recent year, the mean test score was 1483 and the standard deviation was 312. The test scores of four students selected at random are 1880, 1220, 2200, and 1370. Find the z-scores that correspond to each value and determine whether any of the values are unusual.

The z-score for 1880 is 1.27.
(Round to two decimal places as needed.)

The z-score for 1220 is −0.84.
(Round to two decimal places as needed.)

The z-score for 2200 is 2.30.
(Round to two decimal places as needed.)

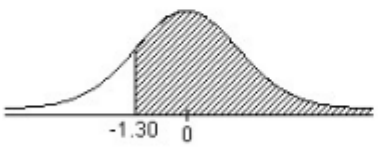
The z-score for 1370 is −0.36.
(Round to two decimal places as needed.)

Which values, if any, are unusual? Select the correct choice below and, if necessary, fill in the answer box within your choice.

- A. The unusual value(s) is/are 2200.
(Use a comma to separate answers as needed.)

This Question: 1 pt | 4 of 17 (3 complete)

Find the area of the indicated region under the standard normal curve.



- A. 0.9177
- B. 0.0823
- C. 0.9032
- D. 0.0968

This Question: 1 pt

5 of 17 (4 complete)

Find the area of the indicated region under the standard normal curve.

- (●) A. 0.6562
- ( ) B. 0.3438
- ( ) C. 1.3090
- ( ) D. 0.3090

This Question: 1 pt

6 of 17 (5 complete)

Find the area of the indicated region under the standard normal curve.

- ( ) A. 0.8489
- ( ) B. 0.0212
- (●) C. 0.1504
- ( ) D. 0.1292

This Question: 1 pt

7 of 17 (6 complete)

The monthly utility bills in a city are normally distributed, with a mean of $100 and a standard deviation of $14. Find the probability that a randomly s
than $140.

(a) The probability that a randomly selected utility bill is less than $65 is 0.0062.
(Round to four decimal places as needed.)

(b) The probability that a randomly selected utility bill is between $85 and $120 is 0.7814.
(Round to four decimal places as needed.)

(c) The probability that a randomly selected utility bill is more than $140 is 0.0021.
(Round to four decimal places as needed.)

This Question: 1 pt

8 of 17 (7 complete)

IQ test scores are normally distributed with a mean of 100 and a standard deviation of 15. Find the x-score that corresponds to a z-score of 2.33.

- A. 142.35
- B. 139.55
- C. 134.95
- D. 125.95

This Question: 1 pt

9 of 17 (8 complete)

The population mean and standard deviation are given below. Find the required probability and determine whether the given sample mean would be considered unusual.

For a sample of $n = 70$, find the probability of a sample mean being greater than 216 if $\mu = 215$ and $\sigma = 3.5$.

For a sample of $n = 70$, the probability of a sample mean being greater than 216 if $\mu = 215$ and $\sigma = 3.5$ is 0.0064.
(Round to four decimal places as needed.)

Would the given sample mean be considered unusual?

The sample mean would be considered unusual because it does not lie within the range of a usual event, namely within 2 standard deviations of the mean of the sample means.

This Question: 1 pt

10 of 17 (9 complete)

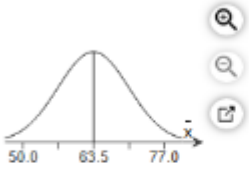
The heights of fully grown trees of a specific species are normally distributed, with a mean of 63.5 feet and a standard deviation of 6.75 feet. Random samples of size 14 are drawn from the populati
to find the mean and standard error of the sampling distribution. Then sketch a graph of the sampling distribution.

The mean of the sampling distribution is $\mu_{\bar{x}} = 63.5$.

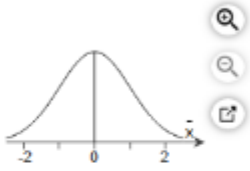
The standard error of the sampling distribution is $\sigma_{\bar{x}} = 1.80$.
(Round to two decimal places as needed.)

Choose the correct graph of the sampling distribution below.

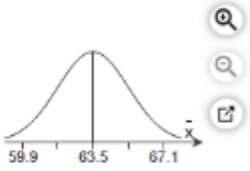
- A.



- B.



- C.



This Question: 1 pt

11 of 17 (10 complete)

The lengths of lumber a machine cuts are normally distributed with a mean of 88 inches and a standard deviation of 0.3 inch.
(a) What is the probability that a randomly selected board cut by the machine has a length greater than 88.12 inches?
(b) A sample of 35 boards is randomly selected. What is the probability that their mean length is greater than 88.12 inches?

(a) The probability is 0.3446.
(Round to four decimal places as needed.)

(b) The probability is 0.0090.
(Round to four decimal places as needed.)

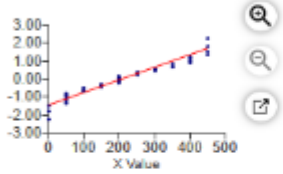
This Question: 1 pt

12 of 17 (11 complete)

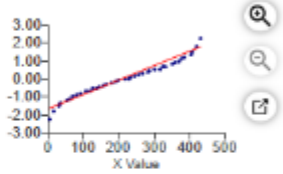
Use a calculator or computer software to generate a normal quantile plot for the data in the accompanying table. Then determine whether the data come from a normally distributed population.

Click the icon to view the data set.

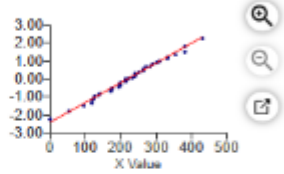
A.



B.



C.



Determine whether the data come from a normally distributed population. Choose the correct answer below.

- A. The distribution is not normal. The points do not show any systematic pattern that is a straight-line pattern.
- B. The distribution is normal. The points are not reasonably close to a straight line and do not show a systematic pattern that is not a straight-line pattern.
- C. The distribution is not normal. The points are not reasonably close to a straight line.
- D. The distribution is normal. The points show a systematic pattern that is not a straight-line pattern.

This Question: 1 pt

13 of 17 (12 complete)

This Quiz: 17 pts pos

Fill in the blank.

A _____ is a graph of points (x,y) where each x-value is from the original set of sample data, and each y-value is the corresponding z-score that is a quantile value expected from the standard normal distribution.

A normal quantile plot is a graph of points (x,y) where each x-value is from the original set of sample data, and each y-value is the corresponding z-score that is a quantile value expected from the standard normal distribution.

This Question: 1 pt

14 of 17 (13 complete)

Which of the following is NOT true in regards to using a normal quantile plot to determine whether or not a distribution is normal?

Choose the correct answer below.

- A. If the plot is bell-shaped, the population distribution is normal.
- B. The population distribution is normal if the pattern of points is reasonably close to a straight line.
- C. The criteria for interpreting a normal quantile plot should be used more strictly for large samples.
- D. The population distribution is not normal if the points show some systematic pattern that is not a straight-line pattern.

This Question: 1 pt

15 of 17 (14 complete)

If a histogram of a sample of men's ages is skewed, what do you expect to see in the normal quantile plot?

- Points are following a straight-line pattern.
- Points are not following a straight-line pattern.

Quiz: Module 4: Normal Probability Distribution - Quiz

Submit Qu

This Question: 1 pt | 16 of 17 (15 complete) | **This Quiz:** 17 pts poss

A researcher collects a simple random sample of grade-point averages of statistics students, and she calculates the mean of this sample. Under what conditions can that sample mean be treated as a value from a population hav a normal distribution?

Select all that apply

- ☐ A. The researcher collects more than 30 samples.
- ☐ B. If the population of statistics students has a normal distribution.
- ☑ C. If the population of grade-point averages has a normal distribution.
- ☑ D. The sample has more than 30 grade-point averages.

This Question: 1 pt | 17 of 17 (16 complete) | **This Q**

Assume that females have pulse rates that are normally distributed with a mean of $\mu = 72.0$ beats per minute and a standard deviation of $\sigma = 12.5$ beats per minute. Complete parts (a) through (c) below.

a. If 1 adult female is randomly selected, find the probability that her pulse rate is between 65 beats per minute and 79 beats per minute.

The probability is 0.4245.
(Round to four decimal places as needed.)

b. If 16 adult females are randomly selected, find the probability that they have pulse rates with a mean between 65 beats per minute and 79 beats per minute.

The probability is 0.9749.
(Round to four decimal places as needed.)

c. Why can the normal distribution be used in part (b), even though the sample size does not exceed 30?

- ◉ A. Since the original population has a normal distribution, the distribution of sample means is a normal distribution for any sample size.
- ○ B. Since the distribution is of individuals, not sample means, the distribution is a normal distribution for any sample size.
- ○ C. Since the distribution is of sample means, not individuals, the distribution is a normal distribution for any sample size.
- ○ D. Since the mean pulse rate exceeds 30, the distribution of sample means is a normal distribution for any sample size.

Quiz Summary

Name: Module 4: Normal Probability Distribution - Quiz
Due: 07/11/21 11:59pm
Date Submitted: 07/11/21 12:58am
Time Spent: 37m 6s
Score: 100% (17/17 pts)

This quiz **will** affect your Study Plan score.

Questions: 17	Correct: 17	Partial Credit: 0	Incorrect: 0	Incomplete: 0

✓ Question 1 (1/1)	✓ Question 2 (1/1)	✓ Question 3 (1/1)	✓ Question 4 (1/1)
✓ Question 5 (1/1)	✓ Question 6 (1/1)	✓ Question 7 (1/1)	✓ Question 8 (1/1)
✓ Question 9 (1/1)	✓ Question 10 (1/1)	✓ Question 11 (1/1)	✓ Question 12 (1/1)
✓ Question 13 (1/1)	✓ Question 14 (1/1)	✓ Question 15 (1/1)	✓ Question 16 (1/1)
✓ Question 17 (1/1)			