


← **TMTH 3360, section 14343 11681, Spring 2023**

Chapter 06 Homework Section 6.3 (Homework)

 INSTRUCTOR

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University of
Houston, TX

Current Score

QUESTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14
POINTS	1/1	3/3	2/3	2/3	-/3	-/3	-/3	-/3	-/1	-/1	-/1	-/2	-/3	-/5
	✓	✓	✓ ✗											

TOTAL SCORE

8/35

22.9%

Due Date

TUE, MAR 21, 2023
5:59 AM GMT+1

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Assignment Submission & Scoring

Assignment Submission

For this assignment, you submit answers by questions. You are required to use a new randomization after every 3 question submissions.

Assignment Scoring

Your best submission for each question part is used for your score.

1. [1/1 Points]

[DETAILS](#)[PREVIOUS ANSWERS](#)**MENDSTAT15 6.3.001.**

1/6 Submissions Used

[MY NOTES](#)[ASK YOUR TEACHER](#)

Can the normal approximation be used to approximate probabilities for the binomial random variable x , with values for n and p given below. If not, is there another approximation that you could use?

$$n = 26 \text{ and } p = 0.7$$

- ☒ Yes, we can use the normal approximation for the binomial probabilities associated with x .
- ☐ No, but we can use the Uniform approximation for the binomial probabilities associated with x .
- ☐ No, but we can use the Exponential approximation for the binomial probabilities associated with x .
- ☐ No, but we can use the Hypergeometric approximation for the binomial probabilities associated with x .
- ☐ No, but we can use the Poisson approximation for the binomial probabilities associated with x .



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2. [3/3 Points]

DETAILS

PREVIOUS ANSWERS

MENDSTAT15 6.3.005.MI.S.

4/6 Submissions Used

MY NOTES

ASK YOUR TEACHER

Consider a binomial random variable x with $n = 21$ and $p = 0.6$.

USE SALT

Find the mean for the binomial random variable x .



Find the standard deviation for the binomial random variable x . (Round your answer to three decimal places.)



Use the correction for continuity and approximate $P(x > 6)$ using the normal approximation. (Round your answer to four decimal places.)

 $P(x > 6) =$ 

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

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3. [2/3 Points]

DETAILS

PREVIOUS ANSWERS

MENDSTAT15 6.3.007.S.

6/6 Submissions Used

MY NOTES

ASK YOUR TEACHER

Consider a binomial random variable x with $n = 100$ and $p = 0.2$.

USE SALT

Find the mean for the binomial random variable x .



Find the standard deviation for the binomial random variable x .



Use the correction for continuity and approximate $P(18 < x < 24)$ using the normal approximation. (Round your answer to four decimal places.)

 $P(18 < x < 24) =$ 

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

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4. [2/3 Points]

DETAILS

PREVIOUS ANSWERS

MENDSTAT15 6.3.009.S.

3/6 Submissions Used

MY NOTES

ASK YOUR TEACHER

Consider a binomial random variable x with $n = 100$ and $p = 0.2$.

USE SALT

Find the mean for the binomial random variable x .



Find the standard deviation for the binomial random variable x .



Use the correction for continuity and approximate $P(x \geq 25)$ using the normal approximation. (Round your answer to four decimal places.)

 $P(x \geq 25) =$ 

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

Need Help?

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5. [-/3 Points]

DETAILS

MENDSTAT15 6.3.010.S. 0/6 Submissions Used

MY NOTES

ASK YOUR TEACHER

Consider a binomial random variable x with $n = 100$ and $p = 0.2$.

 USE SALT

Find the mean for the binomial random variable x .

Find the standard deviation for the binomial random variable x .

Use the correction for continuity and approximate $P(x \leq 30)$ using the normal approximation. (Round your answer to four decimal places.)

$$P(x \leq 30) = \text{$$

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

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6. [-/3 Points]

DETAILS

MENDSTAT15 6.3.013.MI.S. 0/6 Submissions Used

MY NOTES

ASK YOUR TEACHER

Consider a binomial random variable x with $n = 25$ and $p = 0.2$.

 USE SALT

Use [Table 1](#) in Appendix I to find the exact value for the binomial probability. (Round your answer to three decimal places.)

$$P(3 \leq x \leq 8) = \boxed{}$$

Approximate the probability $P(3 \leq x \leq 8)$ using the normal approximation with the correction for continuity. (Round your answer to four decimal places.)

$$P(3 \leq x \leq 8) = \boxed{}$$

Compare your answers.

- ☐ The answers are very close since there is less than a 0.01 difference between them.
- ☐ The answers are not very close since there is more than a 0.01 difference between them.

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

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7. [-/3 Points]

DETAILS

MENDSTAT15 6.3.015.S. 0/6 Submissions Used

MY NOTES

ASK YOUR TEACHER

Consider a binomial random variable x with $n = 20$ and $p = 0.4$.

USE SALT

Use [Table 1](#) in Appendix I to find the exact values for the binomial probability. (Round your answer to three decimal places.)

$$P(x \geq 11) = \boxed{}$$

Approximate the probability $P(x \geq 11)$ using the normal approximation with the correction for continuity. (Round your answer to four decimal places.)

$$P(x \geq 11) = \boxed{}$$

Compare your answers.

- ☐ The answers are not very close since there is more than a 0.01 difference between them.
- ☐ The answers are very close since there is less than a 0.01 difference between them.

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

Need Help?

Read It

8. [-/3 Points]

DETAILS

MENDSTAT15 6.3.016.S. 0/6 Submissions Used

MY NOTES

ASK YOUR TEACHER

A *USA Today* snapshot found that 47% of Americans associate "recycling" with Earth Day. Suppose a random sample of $n = 60$ adults are polled and that the 47% figure is correct. Use the normal curve to approximate the probabilities of the following events. (Use the normal approximation. Round your answers to four decimal places.)



- (a) Fewer than 45 individuals associate "recycling" with Earth Day.

- (b) More than 37 individuals associate "recycling" with Earth Day.

- (c) More than 12 individuals do *not* associate "recycling" with Earth Day.

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

Need Help?

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9. [-/1 Points]

DETAILS

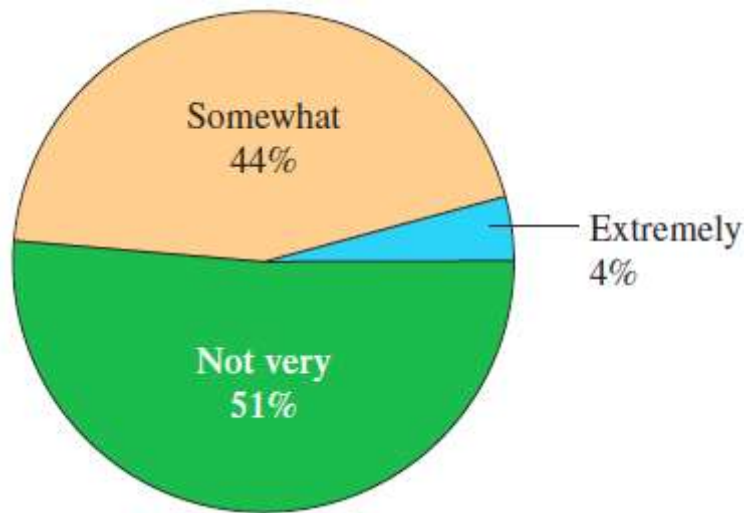
MENDSTAT15 6.3.017.S. 0/6 Submissions Used

MY NOTES

ASK YOUR TEACHER

A Snapshot in *USA Today* indicates that 51% of Americans say the average person is not very considerate of others when talking on a cellphone. Suppose that 100 Americans are randomly selected. Find the approximate probability that 58 or more Americans would indicate that the average person is not very considerate of others when talking on a cellphone. (Use the normal approximation. Round your answer to four decimal places.)

How Polite Are Cell Phone Users? †



USE SALT

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

Need Help?

Read It

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10. [-/1 Points]

DETAILS

MENDSTAT15 6.3.018.S. 0/6 Submissions Used

MY NOTES

ASK YOUR TEACHER

A purchaser of electric relays buys from two suppliers, A and B. Supplier A supplies two of every three relays used by the company. If 60 relays are selected at random from those in use by the company, find the probability that at most 37 of these relays come from supplier A. Assume that the company uses a large number of relays. (Use the normal approximation. Round your answer to four decimal places.)

 USE SALT

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

Need Help?

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11. [-/1 Points]

DETAILS

MENDSTAT15 6.3.019.S. 0/6 Submissions Used

MY NOTES

ASK YOUR TEACHER

An airline finds that 5% of the persons making reservations on a certain flight will not show up for the flight. If the airline sells 190 tickets for a flight that has only 185 seats, what is the probability that a seat will be available for every person holding a reservation and planning to fly? (Round your answer to four decimal places.)

 USE SALT

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

Need Help?

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12. [-/2 Points]

DETAILS

MENDSTAT15 6.3.020.S. 0/6 Submissions Used

MY NOTES

ASK YOUR TEACHER

Data indicate that a particular genetic defect occurs in 1 of every 1,000 children. The records of a medical clinic show $x = 52$ children with the defect, from a total of 50,000 children that were examined.

 USE SALT

- (a) If the 50,000 children were a random sample from the population of children represented by past records, what is the probability of observing a value of x equal to 52 or more? (Use the normal approximation. Round your answer to four decimal places.)
-
- (b) Would you say that the observation of $x = 52$ or more children with genetic defects represents a rare event?
- ☐ The observation is not rare because the probability is greater than 0.05.
- ☐ The observation is rare because the probability is less than 0.05.

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

Need Help?

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13. [-/3 Points]

DETAILS

MENDSTAT15 6.3.024.S. 0/6 Submissions Used

MY NOTES

ASK YOUR TEACHER

In a certain population, 19% of the people have Rh-negative blood. A blood bank serving this population receives 96 blood donors on a particular day. (Use the normal approximation. Round your answers to four decimal places.)

USE SALT

(a) What is the probability that 10 or fewer are Rh-negative?

(b) What is the probability that 15 to 20 (inclusive) of the donors are Rh-negative?

(c) What is the probability that more than 80 of the donors are Rh-positive?

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

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14. [-/5 Points]

DETAILS

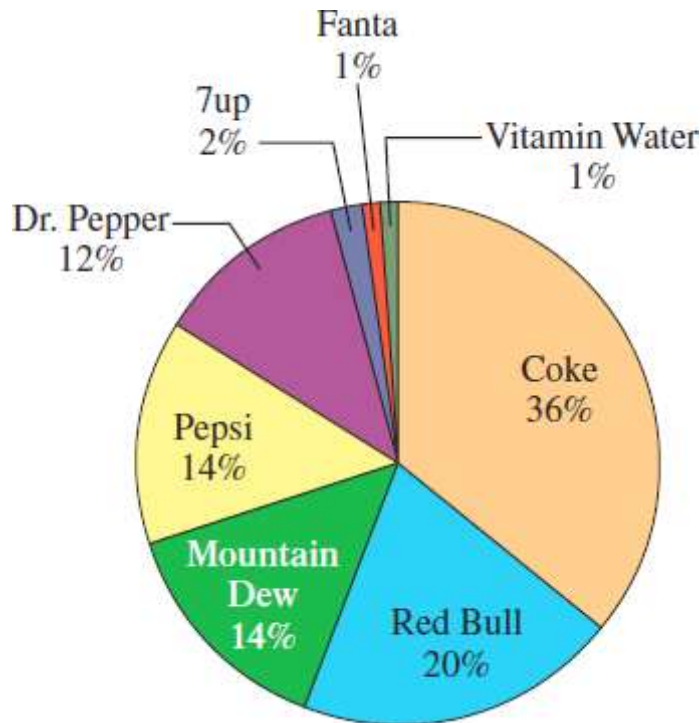
MENDSTAT15 6.3.025.S. 0/6 Submissions Used

MY NOTES

ASK YOUR TEACHER

Two of the biggest soft drink rivals, Pepsi and Coke, are very concerned about their market shares. The pie chart that follows claims that Coke's share of the beverage market is 36%. Assume that this proportion will be close to the probability that a person selected at random indicates a preference for a Coke product when choosing a soft drink.

Share of Voice for Beverage Brands †



i

A group of $n = 500$ consumers is selected and the number preferring a Coke product is recorded. Use the normal curve to approximate the following binomial probabilities. (Round your answers to four decimal places.)

USE SALT

- (a) Exactly 210 consumers prefer a Coke product.

- (b) Between 150 and 210 consumers (inclusive) prefer a Coke product.

- (c) Fewer than 210 consumers prefer a Coke product.

(d) Would it be unusual to find that 229 of the 500 consumers preferred a Coke product?

- ☐ Yes
- ☐ No

If this were to occur, what conclusions would you draw?

- ☐ Coke's market share is probably higher than claimed.
- ☐ Coke's market share is probably lower than claimed.
- ☐ Coke's market share estimate is plausibly accurate.

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

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