ADMS 2320 Mock Term Test 2

AP/ADMS 2320 · Chapters 7, 8, 9 and 10 · Fall 2026

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Time 90 minutes

Marks 30 (3 questions, 10 marks each)

How to use this mock

- Set a 90-minute timer and work through it in one sitting, on paper.
- Use your calculator and the Keller tables (binomial and standard normal).
- Show your work for every part: method marks count.
- Round probabilities to 4 decimal places and z values to 2 decimal places.

Question 1 (10 marks)

A York call centre tracks how each outbound call ends:

Outcome	Share of calls
Sale	20%
Call back later	15%
Not interested	35%
Voicemail	25%
Hung up	5%

Calls are independent of each other.

a) What is the probability that a randomly selected call ends in a sale? (1 mark)

b) An agent makes 8 calls. What is the probability that exactly 2 of them end in a sale? (2 marks)

c) An agent makes 8 calls. What is the probability that at least 3 of them end in a sale? (2 marks)

d) Find the mean and standard deviation of the number of sales in 8 calls. (2 marks)

e) Over a full shift the agent makes 25 calls. What is the probability that more than 4 but fewer than 9 of them end in a sale? (3 marks)

Question 2 (10 marks)

Commute times from home to York's Keele campus are normally distributed with a mean of 52 minutes and a standard deviation of 12 minutes. Commute times to Glendon campus are normally distributed with a mean of 45 minutes and a standard deviation of 9 minutes. It is believed that 30% of Keele students drive to campus.

a) A Keele student is selected at random. What is the probability that their commute is between 40 and 70 minutes? (2 marks)

b) The longest 10% of Keele commutes are longer than how many minutes? (2 marks)

c) A random sample of 36 Keele students is taken. What is the probability that their mean commute is more than 55 minutes? (2 marks)

d) A random sample of 200 Keele students is taken. What is the probability that fewer than 25% of them drive to campus? (2 marks)

e) Random samples of 36 Keele students and 36 Glendon students are taken. What is the probability that the Keele sample mean exceeds the Glendon sample mean by more than 10 minutes? (2 marks)

Question 3 (10 marks)

a) The printers at Scott Library take between 20 and 50 seconds to print a page, uniformly distributed. What is the probability that a page takes more than 42 seconds? (2 marks)

b) Find the mean and standard deviation of the printing time in part a). (2 marks)

Parts c) to e) are independent of parts a) and b).

A random sample of 64 ADMS 2320 students found they spend a mean of 6.4 hours a week studying statistics. Assume the population standard deviation is 2 hours.

c) Construct a 95% confidence interval estimate of the population mean study time. (2 marks)

d) How large a sample is needed to estimate the population mean to within 0.3 hours, with 99% confidence? (2 marks)

e) Which ONE statement about the interval in part c) is true? (2 marks)

i. There is a 95% probability that the population mean lies inside the interval found in part c).

ii. 95% of ADMS 2320 students study between the two limits found in part c).

iii. If many samples of 64 students were taken and an interval built from each the same way, about 95% of those intervals would contain the population mean.

iv. A 99% interval built from the same sample would be narrower than the 95% interval.

End of mock test. Worked solutions to every part, with the videos that teach each one, are in Term Test 2 Prep: **statsdoesntsuck.com/buy/term-test-2-prep**