BUSAD 265 Exam 2 Practice Name: _____
Sep 28, 2026

Instructions: Show your work. For Normal distribution problems, draw and label a Normal curve. Use the Standard Normal (Z) Table to find probabilities.

Problem 1 – GMAT Scores

The Graduate Management Admission Test (GMAT) is required for admission to many MBA programs. Between January 2015 and December 2018, more than 700,000 GMAT exams were taken. GMAT scores during this period were approximately normally distributed with a mean of 563 and a standard deviation of 118: **N(563, 118).**

A. Calculate the Z-scores for GMAT scores of **400, 500, 600, and 700**. Show your work.
B. Using the Standard Normal (Z) Table, find the proportion of test takers scoring **below** each of the four values above.
C. What proportion of GMAT test takers scored **less than 400**?
D. What proportion scored **more than 700**?
E. What proportion scored **between 600 and 700**?
F. What proportion scored **between 400 and 600**?
G. What GMAT score is required to reach the **top 10%** of all test takers?

Problem 2 – Commute Times

Suppose the daily commute times for employees at a large company are approximately Normally distributed with a mean of **31 minutes** and a standard deviation of **8 minutes**: **N(31,8).**

A. What proportion of employees have a commute of **less than 21.5 minutes**?
B. What proportion have a commute of **more than 38 minutes**?
C. What proportion have a commute **between 27 and 42 minutes**?
D. An employee has a commute of **46 minutes**. Approximately what percentile is this employee's commute?
E. What commute time separates the **longest 20% of commutes** from the remaining 80%?

Problem 3 – Exam Scores

Scores on an examination are approximately Normally distributed: **N(74,11)**

A. A student earns a score of **86**. Calculate the student's Z-score.
B. Approximately what proportion of students scored **below 86**?
C. Approximately what proportion scored **above 86**?
D. What proportion of students scored **between 65 and 82**?
E. What proportion of students scored **between 74 and 90**?
F. What is the minimum score to be in the **top 15%**?
G. Approximately **25% of students scored below what score?**

Problem 4 – Understanding Z-Scores

A. A variable is approximately normal with mean = 120 and standard deviation = 15: **N(120,15)**
    a. What value has a Z-score of **+2.00**?
    b. What value has a Z-score of **−1.50**?
    c. What is the Z-score of an observation equal to **105**?
B. **Adam** scored **82** on an exam with a mean of 70 and standard deviation of 8.
   Ben scored **91** on an exam with a mean of 80 and standard deviation of 6.
   Who performed better?

Problem 5 – Module 1 Review: Describing Data

A sample of n=12 students reported the following number of hours they worked for pay during the previous week: **{0, 6, 8, 10, 12, 14, 15, 17, 18, 22, 28, 41}**

A. Calculate the **mean** number of hours worked.
B. Find the **median** number of hours worked.
C. Would you describe the distribution as approximately **symmetric, skewed left, or skewed right**? Explain briefly.
D. For these data, which measure would probably provide the better description of a typical student's work hours: the **mean or median**? Explain.
E. Suppose the student who reported 41 hours had actually reported **51 hours**. Which would be affected more: the **mean or the median**?

Problem 6 – Putting It Together

The weights of bags filled by a packaging machine are approximately Normally distributed with a mean of **50.0 ounces** and a standard deviation of **2.4 ounces**: **N(50.0, 2.4).**

A. A bag weighs **46.5 ounces**. Calculate its Z-score.
B. What proportion of bags weigh **less than 46.5 ounces**?
C. What proportion weigh **more than 53 ounces**?
D. What proportion weigh **between 48 and 53 ounces**?
E. The company wants to identify the **lightest 5% of bags** for inspection. What weight should be used as the cutoff?
F. A bag has a Z-score of **1.35**. What does the Z-score tell you about this bag's weight?
G. Calculate the actual weight of a bag with a Z-score of **1.35**.