CONCORDIA COLLEGE
MOORHEAD, MINNESOTA

Name: _____

Date: _____

Section: ○ Mon/Wed ○ Tue/Thu

1. **(6 Points)**

An airline selects a random sample of 100 independent baggage-handling times. The sample mean is 20 minutes, and the population standard deviation is known to be 5 minutes. Construct a 95% confidence interval for the population mean. Use $z_{0.025} = 1.96$.

A. Calculate the margin of error. Show your calculation.

- Answer: _____

_____

B. Give the lower and upper endpoints of the confidence interval. Show your calculation.

- Answer: _____

_____

C. Interpret this confidence interval in the context of the problem.

- Answer: _____

_____

2. **(4 Points)**

Consider the confidence interval in Question 1.

A. Using the same sample, would increasing the confidence level from 95% to 99% produce a wider or narrower interval? Explain.

- Answer: _____

_____

B. If the sample size increased from 100 to 400 while the confidence level and population standard deviation stayed the same, by what factor would the margin of error change? Explain.

- Answer: _____

_____

Score: _____ / 10