

Chapter 11 Practice Test

For #1 to #4, choose the best answer.

1. Linda and Matt each survey 20 people about the carving in front of the post office. Linda was in the mall entrance and Matt was in the entrance to the fine arts centre. When they compared their results, the responses were very different. What influencing factor(s) may have caused the difference?

A cultural sensitivity
B timing
C use of language
D all of the above

2. Diana wants to survey grade 9 students about their favourite flavour of soft drink. Which question is most appropriate?

A Is cola your favourite type of soft drink?
B Do you like soft drinks?
C What is your favourite flavour of soft drink?
D What brand of soft drink do you prefer?

3. An eco-tourism company is researching how to expand its tours. They divide the western provinces into eight areas. Then, they survey 10% of the population in each area. Which sampling method is this?

A convenience sample
B stratified sample
C systematic sample
D voluntary response sample



446 MHR • Chapter 11

4. A business sends questionnaires to 50% of its employees randomly selected from a list. Which sampling method is this?

A convenience sample
B stratified sample
C systematic sample
D voluntary response sample

Complete the statements in #5 to #7.

5. A small group that represents a population is a _____.

6. Choosing members of the population at fixed intervals from a membership list describes a _____.

7. A web site that asks browsers to fill out an online survey is using a _____.

Short Answer

8. Cheyenne wants to survey students in her high school about types of music for a school dance. They can choose from rap, alternative, rock, and country.

a) What is the population for this study?
b) Write a survey question that is clearly stated and free from influencing factors.
c) Describe two sampling methods she could use for her survey.

9. Read the survey question.

Do you think students should take Physical Education in school?
YES NO

a) The school sports coaches are randomly surveyed. Is this sample biased? Explain.
b) The school sports teams are randomly surveyed. Is this sample biased? Explain.
c) Describe a sample that is free from bias.

10. For each situation, decide if you would survey the population or a sample. Give a reason.

a) A truck loaded with fresh produce arrives for inspection.
b) Are the smoke detectors in the office tower working?
c) How much exercise do students get?

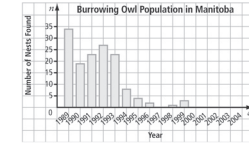
11. On an assembly line for cell phones, a random sample shows 3% of the units are defective. How many are likely to be defective in a run of 3248 cell phones? Include any assumptions you made in your prediction.

Extended Response

12. Paul knew the theoretical probability of getting heads when he tossed a coin was 50%. After conducting an experiment of ten trials, his experimental probability of getting heads was 60%. He concluded that the more times he tosses the coin, the more likely he will get heads. Do you agree? Why or why not?

13. Greg is researching to what extent programs are successful in protecting burrowing owls. Burrowing owls are considered endangered in Canada. In 1977, there were about 2000 breeding pairs of burrowing owls in Canada. By 2003, the population was reduced to less than 500 pairs. Greg found data from the Manitoba Wildlife Branch that has been monitoring and protecting these owls since 1982.

The graph shows data about the burrowing owl population in Manitoba since 1989.



Based on the data, Greg concludes that programs in place to protect burrowing owls are not successful in increasing the population. Provide feedback to Greg about his question, data, and conclusion. What conclusion might you suggest to Greg? What further advice might you give?



Chapter 11 Practice Test • MHR 447

MathLinks 9, pages 446–447

Suggested Timing

40–50 minutes

Blackline Masters

BLM 11–15 Chapter 11 Test

Planning Notes

Have students start the practice test by writing the question numbers in their notebook. Have them indicate questions with which they need a little help, a lot of help, or no help. Have students first complete the questions they know they can do, followed by those they know something about. Finally, have them do their best on the questions that they are struggling with.

This practice test can be assigned as an in-class or take-home assignment. Provide students with the number of questions they can comfortably do in one class. These are the minimum questions that will meet the related curriculum outcomes: #1–11.

Study Guide

Question(s)	Section(s)	Refer to	The student can ...
#1	11.1	Example 1	✓ identify how bias, use of language, ethics, cost, time and timing, privacy, and cultural sensitivity may influence the collection of data
#2, 8	11.1	Example 2	✓ write and analyse appropriate survey questions
#3, 4, 6, 7, 8	11.2	Example 2	✓ identify different types of samples
#5, 8	11.2	Explore	✓ identify the difference between a population and a sample
#9	11.2 11.3	Key Ideas Example 1	✓ determine whether results from a sample can be applied to a population ✓ identify and explain assumptions linked to probabilities
#10	11.2	Example 1	✓ justify using a population or a sample of a population for given situations
#11	11.3	Example 1	✓ identify and explain assumptions linked to probabilities
#12	11.3	Example 3	✓ explain decisions based on probabilities
#13	11.3	Example 2	✓ identify and explain assumptions linked to probabilities

Answers

Chapter 11 Practice Test

1. D 2. C 3. B 4. D 5. sample
6. systematic sample 7. voluntary response sample
8. a) students in the high school
 - b) Example: “What type of music do you prefer for the school dance?”
 - c) Examples:
 - Use a systematic sample by obtaining a list of students who bought tickets for the dance, and ask every 15th student on the list.
 - Use a convenience sample by asking students in math class.
9. a) Example: Yes, it is biased. The sports coaches would most likely be in favour of mandatory physical education.
 - b) Example: Yes, it is biased. The sports teams would most likely be in favour of mandatory physical education.
 - c) Example: Use a stratified sample by dividing the population into groups, and ask the same fraction of members from each group.
10. a) Example: Sample. Surveying the population would not be time or cost efficient.
 - b) Example: Population. Making sure that all smoke detectors work is very important, so it is necessary to test each one.
 - c) Example: Sample. Surveying the population would not be time or cost efficient.
11. Example: Assuming that the sample is random, 97 cell phones are likely defective.
12. Example: I disagree. The more times he performs the experiment, the closer the experimental probability will be to the theoretical probability.
13. Example: Greg’s research question and conclusion is based on the assumptions that the number of owl nests indicates the size of the burrowing owl population and that human interaction is the only factor that affects burrowing owls. He could do further research to find data about individual burrowing owl counts. He should also find out if another factor, such as disease, might be causing the decline in the burrowing owl population. A more accurate conclusion that he might make based on the data is that since 1989, the number of burrowing owl nests in Manitoba has decreased.

Assessment	Supporting Learning
Assessment as Learning	
Chapter 11 Self-Assessment Have students review their earlier responses in the What I Need to Work On section of their Foldable.	<ul style="list-style-type: none"> • Have students use their responses on the practice test and work they completed earlier in the chapter to identify areas in which they may need to reinforce their understanding of skills or concepts. Before the chapter test, coach them in the areas in which they are having difficulties.
Assessment of Learning	
Chapter 11 Test After students complete the practice test, you may wish to use BLM 11–15 Chapter 11 Test as a summative assessment.	<ul style="list-style-type: none"> • Consider allowing students to use their Foldable. • Since the Wrap It Up! and Challenges provide additional reinforcement of chapter content, you may wish to have students complete these activities before doing the Chapter 11 Practice Test and BLM 11–15 Chapter 11 Test. • Consider using the Challenges to assess the knowledge and skills of students who have difficulty with tests.