Chapters 8-11 Review

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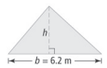
Chapter 8

1. For each equation:
- Without solving, predict whether the value of x is greater than 1 or less than 1. Explain your reasoning.
- Solve to verify your prediction.

a) $8x = \frac{2}{5}$ **b)** $\frac{x}{9} = \frac{5}{6}$

c) $\frac{7}{x} = \frac{1}{4}$ **d)** $\frac{1}{x} = \frac{5}{2}$

2. The formula for the area of a triangle is $A = \frac{1}{2}bh$, where b is the length of the base and h is the altitude. A triangle has an area of 10.54 m^2 and a base length of 6.2 m. What is the altitude of the triangle?



3. Bruno bought four identical boxes of granola. He received $6.04 in change from a $20.00 bill. How much did he pay for each box of granola?

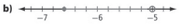
4. Two electricians both charge a fee for a service call, plus an hourly rate for their work. Theo charges a $49.95 fee plus $40.00 per hour. Vita charges a $69.95 fee plus $32.00 per hour. For what length of service call do Theo and Vita charge the same amount?

5. The equilateral triangle and the square have equal perimeters. What is the side length of the square?

Chapter 9

6. What is the algebraic form of the inequality represented on each number line?

a)

b) 

7. Represent each inequality graphically.

a) $x < -6$ **b)** $2.4 \leq x$

8. Write an inequality to represent each election promise that a politician made.

a) At least eight new highways projects will be started.

b) There will be a budget surplus of over 1.3 million this year.

c) Unemployment will be no more than 3.7%.

d) Taxes will be lowered by as much as 10%.

9. Solve each inequality. Express the solution algebraically and graphically.

a) $15 > x + 6.2$ **b)** $-25x < 40$

c) $\frac{x}{5} \geq -10$ **d)** $20 - x \leq 8$

10. Solve each inequality and verify the solution.

a) $4x + 17 \geq 35$

b) $8 < \frac{x}{4} + 3$

c) $5x + 30 > 8x - 9$

d) $2(3 - 4x) \leq 3(8 - 2x)$

11. Linda needs to hire a rubbish removal service to clean up a construction site. The Junk King charges $325 plus $110/t. The Clean Queen charges $145/t. How many tonnes of rubbish would make The Junk King the better option?

12. Lori is going to rent a climbing wall for a school fun night. The rental charge for the wall is $145/h. She has at most $800 to spend.

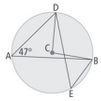
a) What is an inequality that can be used to model the situation?

b) For how many hours could Lori rent the wall and stay within her spending limit?

13. A company uses two different machines to make items they sell. The first machine has made 2000 items so far and produces new items at a rate of 25/h. The second machine has made 1200 items so far and produces new items at a rate of 45/h. When will the second machine have made more items than the first machine?

Chapter 10

14. Point C is the centre of the circle. ∠DAB = 47°. What are the measures of angles ∠DEB and ∠DCB? Justify your answers.



15. In the diagram, CD bisects chord AB. The radius of the circle is 7 cm, and chord AB = 9 cm. What is the length of CE? Express your answer to the nearest tenth of a centimetre.

16. The radius of the circle shown is 25 mm. The radius CG is perpendicular to the chord EF. Chord EF is 7 mm from the centre at C. What is the length of the chord EF?

17. Point C is the centre of two concentric circles. The radius of the smaller circle is 9 cm. The length of chord FG is 40 cm and it is tangent to the smaller circle. What is the circumference of the larger circle? Express your answer to the nearest centimetre.

***MathLinks 9*, pages 450–452**

Suggested Timing
60–75 minutes

Materials
- ruler

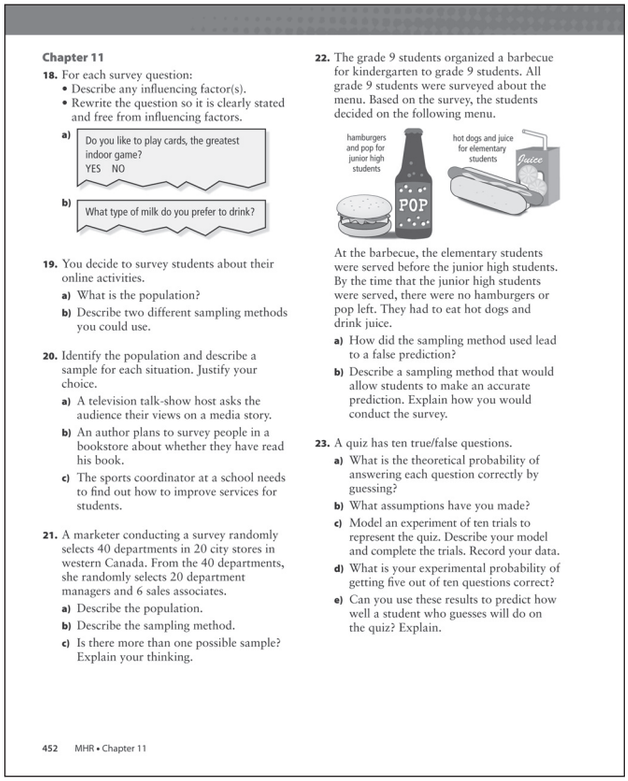
Planning Notes

Consider having students work individually to complete the review, then in pairs to compare the solutions. Alternatively, assign the Chapters 8–11 Review to reinforce the concepts, skills, and processes learned so far. If students encounter difficulties, have them discuss strategies with a partner. Encourage them to refer to their notes in each chapter Foldable, and then to the specific section in the student resource and/or their notebook. Once they have found a suitable strategy, have students include it in the appropriate section of the respective chapter Foldable.

These are the minimum questions that will meet the curriculum requirements: #1–12, 14, 15, 17–20, 22 and 23.

Study Guide

Question(s)	Section(s)	Refer to	The student can …
#1	8.1	Example 1	✓ solve linear equations with rational numbers using multiplication and division
#2	8.1	Example 2	✓ model and solve problems with linear equations that can be solved using multiplication and division
#3	8.2	Examples 1, 3	✓ model and solve problems with linear equations involving two operations
#4	8.4	Example 2	✓ model and solve linear equations that include variables on both sides
#5	8.3	Example 1	✓ model and solve problems with linear equations that include grouping symbols on one side
#6, 7, 8	9.1	Examples 1, 2	✓ represent single-variable linear inequalities verbally, algebraically, and graphically
#9	9.2 9.3	Example 1 Example 1	✓ solve single-step linear inequalities and verify solutions ✓ solve multi-step linear inequalities and verify their solutions
#10	9.2 9.3	Examples 1, 2 Example 1	✓ solve single-step linear inequalities and verify solutions ✓ solve multi-step linear inequalities and verify their solutions
#11	9.2	Example 3	✓ solve problems involving single-step linear inequalities
#12, 13	9.3	Example 2	✓ solve problems involving multi-step linear inequalities
#14	10.1	Example 1	✓ describe the relationship between inscribed angles in a circle
#15	10.2	Example 1	✓ describe the relationship between chords and radii of circles
#16	10.2	Example 2	✓ describe the relationship between chords and radii of circles
#17	10.3	Example 2	✓ relate tangent lines (lines that touch a circle at one point) to the radius of the circle
#18	11.1	Example 1 Example 2	✓ identify how bias, use of language, ethics, cost, time and timing, privacy, and cultural sensitivity may influence the collection of data ✓ write and analyse appropriate survey questions
#19, 20, 21	11.2	Explore Example 2	✓ identify the difference between a population and a sample ✓ identify different types of samples
#20	11.2	Example 1	✓ justify using a population or a sample of a population for given situations
#22	11.3	Example 2	✓ identify and explain assumptions linked to probabilities
#23	11.2 11.3	Key Ideas Example 3	✓ determine whether results from a sample can be applied to a population ✓ explain decisions based on probabilities



Chapter 11

18. For each survey question:
- Describe any influencing factor(s).
- Rewrite the question so it is clearly stated and free from influencing factors.

a) Do you like to play cards, the greatest indoor game? YES NO

b) What type of milk do you prefer to drink?

19. You decide to survey students about their online activities.
- **a)** What is the population?
- **b)** Describe two different sampling methods you could use.

20. Identify the population and describe a sample for each situation. Justify your choice.
- **a)** A television talk-show host asks the audience their views on a media story.
- **b)** An author plans to survey people in a bookstore about whether they have read his book.
- **c)** The sports coordinator at a school needs to find out how to improve services for students.

21. A marketer conducting a survey randomly selects 40 departments in 20 city stores in western Canada. From the 40 departments, she randomly selects 20 department managers and 6 sales associates.
- **a)** Describe the population.
- **b)** Describe the sampling method.
- **c)** Is there more than one possible sample? Explain your thinking.

22. The grade 9 students organized a barbecue for kindergarten to grade 9 students. All grade 9 students were surveyed about the menu. Based on the survey, the students decided on the following menu.

At the barbecue, the elementary students were served before the junior high students. By the time that the junior high students were served, there were no hamburgers or pop left. They had to eat hot dogs and drink juice.
- **a)** How did the sampling method used lead to a false prediction?
- **b)** Describe a sampling method that would allow students to make an accurate prediction. Explain how you would conduct the survey.

23. A quiz has ten true/false questions.
- **a)** What is the theoretical probability of answering each question correctly by guessing?
- **b)** What assumptions have you made?
- **c)** Model an experiment of ten trials to represent the quiz. Describe your model and complete the trials. Record your data.
- **d)** What is your experimental probability of getting five out of ten questions correct?
- **e)** Can you use these results to predict how well a student who guesses will do on the quiz? Explain.

452 MHR • Chapter 11

Meeting Student Needs

- Allow students to complete the review using any combination of oral or written answers, including diagrams.
- Some students may benefit from using a compass and a protractor to draw diagrams for #14 to 17.

Gifted and Enrichment

- Some students may already be familiar with the skills handled in this review. To provide enrichment and extra challenge for gifted students, go to www.mathlinks9.ca and follow the links.

Assessment	Supporting Learning
Assessment *for* Learning	
Chapters 8–11 Review The cumulative review provides an opportunity for students to assess themselves by completing selected questions pertaining to each chapter and checking their answers against the answers in the back of the student resource.	• Have students review their notes from each Foldable, the tests from each chapter, and any Challenges related to those chapters, then, identify items that they had problems with, and do the questions related to those items. Have students do at least one question that tests skills from each chapter. • Have students revisit any chapter section they are having difficulty with.
Assessment *as* Learning	
Math Learning Log Once students have completed the Chapters 8–11 Review, have them reflect on their progress and complete a journal entry for each statement: • I continue to have difficulty with … • Here's how I plan to address what I am having difficulty with …	• Encourage students to clear up any problems that they have had during the past four chapters. Work with them to provide the necessary coaching.