Practice Test 9

Chapter 9 Practice Test

For #1 to #5, select the best answer.

1. Karen told her mother that she would be out for no more than 4 h. If t represents the time in hours, which inequality represents this situation?

A $t < 4$ **B** $t \leq 4$
C $t > 4$ **D** $t \geq 4$

2. Which inequality does the number line represent?

A $x < -1$ **B** $x \leq -1$
C $x > -1$ **D** $x \geq -1$

3. Which number is not a specific solution for the inequality $y - 2 \geq -4$?

A -6 **B** -2
C 2 **D** 6

4. Solve: $5 - x < 2$

A $x < 3$ **B** $x > 3$
C $x < 7$ **D** $x > 7$

5. What is the solution of $5(x - 3) \leq 2x + 3$?

A $x \leq -6$ **B** $x \geq -6$
C $x \leq 6$ **D** $x \geq 6$

Complete the statements in #6 and #7.

6. The number line representing the inequality $x < 5$ would have a(n) ■ circle at 5 and an arrow pointing to the ■.

7. The solution to $-4x < 16$ is x ■ than ■.

Short Answer

8. Represent each inequality on a number line.
a) $-3 < x$
b) $x \leq 6.8$

9. Verify whether $x > -3$ is the correct solution to the inequality $8 - 5x < 23$. Show your thinking. If the solution is incorrect, explain why.

10. Christine is researching a career as an airline pilot. One airline includes the following criteria for pilots. Express each of the criteria algebraically as an inequality.
a) Pilots must be shorter than 185 cm.
b) Pilots must be at least 21 years old.

11. Solve and graph each inequality.
a) $-6 + x \geq 10$
b) $2.4x - 11 > 4.6$
c) $12 - 8x < 17 - 6x$

12. Represent each situation algebraically as an inequality.
a) Luke earns $4.75 per item sold and must earn over $50.
b) It takes Nicole 3 h to sew beads on a pair of mitts. She has no more than 40 h of time to sew beads on all the mitts she plans to give to her relatives as presents.

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Extended Response

13. Consider the inequality $6x - 4 > 9x + 20$.
a) Solve the inequality algebraically.
b) Represent the solution graphically.
c) Give one value that is a specific solution and one that is a non-solution.
d) To solve the inequality, Min first subtracted $6x$ from both sides. Alan first subtracted $9x$ from both sides. Which method do you prefer? Explain why.

14. The Lightning Soccer Club plans to buy shirts for team members and supporters. Pro-V Graphics charges a $75 set-up fee plus $7 per shirt. BT Designs has no set-up fee but charges $10.50 per shirt. How many shirts does the team need to order for Pro-V Graphics to be the better option?

15. Dylan is organizing a curling tournament. The sports complex charges $115/h for the ice rental. Dylan has booked it for 6 h. He will charge each of the 14 teams in the tournament an entrance fee. How much must he charge each team in order to make a profit?

Math Link: Wrap It Up!

You are an amusement park manager who has been offered a job planning a new park in a different location.

a) Give your park a name and choose a location. Explain how you made your choice. State the population of the area around the park that you chose.

b) Choose a reasonable number of rides for your park. Assume that the fixed costs include $5000 in addition to maintenance and wages. Assume maintenance and repairs cost $400 per ride and that it takes eight employees to operate and supervise each ride. Conduct research and then decide:
- the number of hours that rides will be open
- the average hourly wage for employees

What might be the problem if you choose too few or too many rides?

c) Organize your estimates about operating expenses and revenues for the park. You can use the table in the Math Link on page 367 as a reference.

d) Write an expression to represent each of the following for the number of rides you chose:
- expenses per visitor
- revenue per visitor

e) For the number of rides you chose, how many visitors will be needed for the park to make a profit? Show all your work. Justify your solution mathematically.

f) Assume that you have now opened your park. You find that 0.1% of the people in the area come to the park per day, on average. Using this information, will your park earn a profit? If not, explain what changes you could make. Show all your work and justify your solution.

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***MathLinks 9*, pages 370–371**

Suggested Timing
40–50 minutes

Blackline Masters
BLM 9–12 Chapter 9 Test

Planning Notes

Have students start the practice test by writing the question numbers in their notebooks. Have them indicate which questions they need a little help with, a lot of help with, or no help with. Have students first complete the questions they know they can do. Then, have them complete the questions they know something about. Finally, have students do their best on the questions that they are still 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: #1–7, 10, 12, and 13.

Study Guide

Question(s)	Section(s)	Refer to	The student can …
#1, 2, 6, 10	9.1	Examples 1, 2	✓ represent single variable linear inequalities verbally, algebraically, and graphically
#3, 7	9.1	Examples 1, 2	✓ determine if a given number is a possible solution of a linear inequality
#4, 9	9.2	Example 2	✓ solve single-step linear inequalities and verify solutions
#5, 11	9.3	Example 1	✓ solve multi-step linear inequalities and verify their solutions
#8	9.1	Examples 1, 2, 3	✓ represent single variable linear inequalities verbally, algebraically, and graphically
#12	9.2	Example 3	✓ solve problems involving single-step linear inequalities
#13	9.1 9.3	Examples 1, 2 Example 1	✓ represent single variable linear inequalities verbally, algebraically, and graphically ✓ compare the processes for solving linear equations and linear inequalities
#14, 15	9.3	Example 2	✓ solve problems involving multi-step linear inequalities

Answers

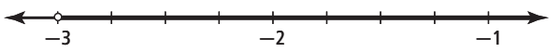
Chapter 9 Practice Test

1. B **2.** D **3.** A **4.** B **5.** C

6. open; left

7. greater; -4

8. a)



b)

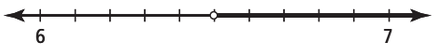
9. The solution is correct.

10. a) $h < 185$

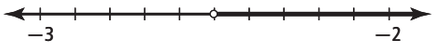
b) $a \geq 21$

11. a) $x \geq 16$;

b) $x > 6.5$;



c) $-2.5 < x$;

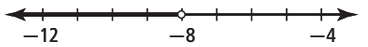


12. a) $4.75x > 50$

b) $3p \leq 40$

13. a) $-8 > x$

b)



c) Example: A specific solution is -13 and a non-solution is 3.

d) Example: Min's method does not involve dividing both sides of the inequality by a negative number. Therefore, the direction of the inequality will not be reversed.

14. Pro-V Graphics will be a better option when more than 21 shirts are ordered.

15. Dylan must charge each team an entrance fee of at least $49.29 in order to make a profit.

Assessment	Supporting Learning
Assessment *as* Learning	
Chapter 9 Self-Assessment Have students review their earlier responses in the What I Need to Work On section of their Foldable.	• 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 *for* Learning	
Chapter 9 Test After students complete the practice test, you may wish to use **BLM 9–12 Chapter 9 Test** as a summative assessment.	• Consider allowing students to use their Foldable. • Since the Math Link: Wrap It Up! and Challenges provide additional reinforcement of chapter content, you may wish to have students complete these activities before doing the Chapter 9 Practice Test and **BLM 9–12 Chapter 9 Test.** • Consider using the Challenge and Game on pages 372–373 to assess the knowledge and skills of students who have difficulty with tests.