8 Practice Test

For #1 to #4, select the correct answer.

1. What is the solution to the equation $\frac{1}{3} - \frac{3}{2}x = -\frac{1}{6}$?

   A $-\frac{1}{9}$ B $\frac{1}{9}$

   C $\frac{3}{1}$ D $\frac{1}{3}$

2. What is the solution to the equation $\frac{-5.2}{t} = -3.25$?

   A 1.6 B −1.6

   C 0.625 D −0.625

3. What is the solution to the equation $0.45 - 0.3g = 0.85 + 0.2g$?

   A 0.8 B −0.8

   C 1.25 D −1.25

4. Which equation does not have the solution $y = -2$?

   A $\frac{y}{4} + 1 = \frac{1}{2}$

   B $\frac{7}{8} - \frac{1}{y} = 1\frac{3}{8}$

   C $\frac{2y - 1}{4} = \frac{5y - 4}{8}$

   D $\frac{2}{3}y + \frac{3}{2} = -\frac{1}{12}y$

Complete the statements in #5 and #6.

5. To solve a linear equation, you isolate the ▆.

6. For $2.43 = -0.38v$, the solution expressed to the nearest hundredth is $v = $ ▆.

Short Answer

7. Model the solution to the equation $\frac{x}{2} = -\frac{3}{4}$ on a number line. What is the solution?

8. a) Describe the steps you would use to solve the equation $1.5(x + 3) = 0.5(x - 1)$.

   b) How would the steps in part a) be different from those you would use to solve $1.5x + 3 = 0.5x - 1$?

9. Solve and check.

   a) $\frac{a + 1}{2} = \frac{2a - 1}{5}$

   b) $2.8(3d - 2) = -12.32$

10. Solve. Express each solution to the nearest tenth.

    a) $-13.9x = 5.7 - 12.5x$
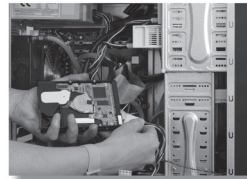
    b) $0.8(2s + 3) = -0.6(5s - 2)$

11. Precipitation is moisture that falls in the form of rain or snow. The relationship between the depth of rain, r, and the depth of snow, s, that results from equal quantities of precipitation is $\frac{r}{s} = 0.1$.

    a) If a storm delivers 15.5 cm of snow, what depth of rain would result from the same amount of precipitation on a warmer day?
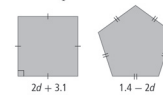
    b) If a storm delivers 2.7 cm of rain, what depth of snow would result from the same amount of precipitation on a colder day?

12. Nav is working part time. She pays a monthly fee of $5.95 for her bank account, plus $0.75 for each deposit or withdrawal. One month, the total cost of her account was $12.70. How many deposits or withdrawals did she make that month?

13. Two computer technicians both charge a fee for a home visit, plus an hourly rate for their work. Dana charges a $64.95 fee, plus $45/h. Tom charges a $79.95 fee, plus $40/h. For what length of service call do Dana and Tom charge the same amount?

14. The square and the regular pentagon have equal perimeters. What is the perimeter of each shape?

    $2d + 3.1$ $1.4 - 2d$

Extended Response

15. a) Identify the error in the following solution.

    $$-3.1(2n + 3) = 12.3$$
    $$-6.2n + 3 = 12.3$$
    $$-6.2n + 3 - 3 = 12.3 - 3$$
    $$-6.2n = 9.3$$
    $$\frac{-6.2n}{-6.2} = \frac{9.3}{-6.2}$$
    $$n = -1.5$$

    b) Correct the error in part a) to determine the correct solution. Express your answer to the nearest tenth.

Math Link: Wrap It Up!

The table shows the energy content, in megajoules, of single servings of some common foods.

Food	Serving Size	Energy (MJ)
Brazil nuts (raw)	125 mL	2.03
Buttermilk	250 mL	0.44
Canola oil	15 mL	0.52
Cheddar cheese	45 g	0.76
Corn (boiled)	1 ear	0.35
Lentils (cooked, drained)	250 mL	1.02
Mango (peeled)	1 mango	0.48
Potato (baked)	1 potato	0.94
Salmon (canned)	95 g	0.81

Use data from the table to write a word problem that can be solved using each of the following types of linear equations. Show the complete solutions to your own problems.

Have a classmate check your solutions. Modify your problems or correct your solutions, if necessary.

a) an equation of the form $ax = b$
b) an equation of the form $\frac{x}{a} = b$
c) an equation of the form $ax + b = c$
d) an equation that includes a grouping symbol
e) an equation with the same variable on both sides

***MathLinks 9*, pages 332–333**

Suggested Timing

40−50 minutes

Materials

• ruler

Blackline Masters

Master 4 Number Line
BLM 8–14 Chapter 8 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, 2, 6, 7, 9, 11, 12, and 15.
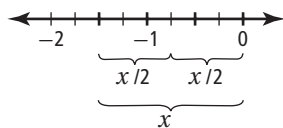
Study Guide

Question(s)	Section(s)	Refer to	The student can …
7, 11	8.1	Example 3, Key Ideas	✓ model problems with linear equations that can be solved using multiplication and division
1, 2, 6	8.1	Examples 1, 2	✓ solve linear equations with rational numbers using multiplication and division
12	8.2	Example 3	✓ model problems with linear equations involving two operations
4	8.2	Example 1	✓ solve linear equations with rational numbers using two operations
14, 15	8.3	Example 2	✓ model problems with linear equations that include grouping symbols on one side
9, 14, 15	8.3	Example 1	✓ solve problems with linear equations that include grouping symbols on one side
13	8.4	Example 2	✓ model problems with linear equations that include variables on both sides
3, 4, 8, 9, 10	8.4	Examples 1, 2, 3	✓ solve problems with linear equations that include variables on both sides

Answers

Chapter 8 Practice Test

1. D   **2.** A   **3.** B   **4.** C   **5.** variable   **6.** $v = -6.39$

7. $x = -\dfrac{3}{2}$

8. a) Example: Distribute, combine like terms, divide
 b) No, distribution is the only difference.

9. a) $a = -7$ **b)** $d = -0.8$

10. a) $x = -4.07$ **b)** $s = -0.26$

11. a) $r = 1.55$ cm   **b)** $s = 27$ cm

12. 9 deposits

13. At 3 h, Dana and Tom charge the same amount.

14. The perimeter is 10 units.

15. a) The error was forgetting to distribute the -3.1 to the 3 in step 1.
 b) $n = -3.48$

Assessment	Supporting Learning
Assessment *as* Learning	
Chapter 8 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 *of* Learning	
Chapter 8 Test After students complete the practice test, you may wish to use **BLM 8–14 Chapter 8 Test** as a summative assessment.	• Consider allowing students to use their Foldable. • You may wish to provide students with **Master 4 Number Line** to complete #7. • 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 8 Practice Test and **BLM 8-14 Chapter 8 Test**. • Consider using the Challenges on page 334 to assess the knowledge and skills of students who have difficulty with tests.