

## Test, Form 3A

For Exercises 1–5, solve each equation. Check your solution.

1.  $-3.7n = 33.3$

1.  $n = -9$

2.  $-\frac{5}{10}x = -\frac{5}{32}$

2.  $x = \frac{5}{16}$

3.  $\frac{3}{4}(x + 8) = 6\frac{3}{16}$

3.  $x = \frac{1}{4}$

4.  $5.7h = 3.2h - 8$

4.  $h = -3.2$

5.  $\frac{2}{5}x - 16 = \frac{3}{5}x - 14$

5.  $x = -10$

6. If  $\frac{4}{5}x = -16$ , what is the value of  $-2x - 15$ ?

6.  $25$

7. The area of Lake Michigan is 9420 square miles less than the area of Lake Superior, which is about one-fifth the size of the Caspian Sea. The Caspian Sea is about 150,000 square miles. Write and solve an equation to find the approximate area of Lake Michigan.

$$m = \frac{1}{5}(150,000) - 9420;$$

7.  $20,580 \text{ sq. mi}$

8. Santosh spent \$200, before tax, on a DVD player and DVDs. The player cost \$120, new DVDs cost \$15, and used DVDs cost \$5. Santosh purchased the same number of new and used DVDs. Write and solve an equation to find the number of each type of DVD Santosh purchased.

$$120 + n(15 + 5) = 200; 4 \text{ of each type}$$

8.  $4$

9. Four times the sum of three consecutive integers is 180. What are the integers?

9.  $14, 15, 16$

10. Suppose for some value of  $q$  the solution of the equation  $0.5(x - q) = 1$  is  $x = 2$ . What must be true about  $q$ ? Justify your conclusion.

$$q = 0; \text{ See students' work.}$$

10.  $q = 0$

11. The side lengths, in centimeters, of a triangle are  $3x$ , 15, and  $4(x - 1)$ . The perimeter of the triangle is 60 centimeters. What is the length of the longest side of the triangle?

11.  $24 \text{ cm}$

# Test, Form 3A (continued)

12. Write an inequality to represent the statement: *Shaun's earnings at \$12 per hour were less than \$150.*

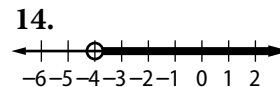
12.  $12h < 150$

13. Is the inequality true or false when  $g = 6$ ? Explain.

$$-2.8g - 2 < -18$$

13. true; Sample answer: If  $g = 6$ , the result is  $-18.8$  which is less than  $-18$ .

14. Graph the inequality  $-4 < z$  on the number line.



15. Is the inequality true or false when  $a = -4$ ?

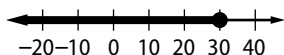
$$-\frac{20}{a} - 5 < -2$$

15. false

16. Solve  $\frac{5}{6} \geq -\frac{3}{8}b$ .

16.  $b \geq -\frac{20}{9}$

17. Write a scenario that corresponds to the graph shown.



17. See students' work.

18. Jarrod has budgeted at most \$1250 for vacation. He has already spent \$439 on airfare. Write and solve an inequality to determine the amount of money left in Jarrod's budget.

18.  $b \leq 1250 - 439;$   
 $b \leq \$811$

19. The English department at a high school is selling a collection of poems written by seniors for \$8. The cost of printing is \$300 to use the printer plus \$3.25 per book. If they print 600 books, how many do they have to sell to make at least \$2000?

19. at least 532 books

20. A computer game lets you build your own amusement park. Suppose it costs you \$25,000 a day to run the park. Assume the average daily attendance is 1250 people. How much should you charge for admission if you want to make a profit of at least \$30,000 for a 30-day month? Write an inequality to represent this situation, and solve.

20.  $1250p - 25000$   
 $\geq \frac{30000}{30};$   
 $p \geq \$20.80$

Copyright © The McGraw-Hill Companies, Inc. Permission is granted to reproduce for classroom use.