

# Chapter 5 Test, Form 3

SCORE \_\_\_\_\_

Solve each inequality. Then graph your solution on a number line.

1.  $m - (-3.4) \geq 12.7$

1.  $\{m \mid m \geq 9.3\}$



2.  $t + (-4) < 32$

2.  $\{t \mid t < 36\}$



Define a variable, write an inequality, and solve each problem.

3. Negative three sevenths plus a number is at least 2.

Sample answer:  
 $n = \text{the number};$   
 $-\frac{3}{7} + n \geq 2; \{n \mid n \geq 2\frac{3}{7}\}$

3. \_\_\_\_\_

4. A number less 15 is greater than the sum of twice the number and 8.

Sample answer:  $n = \text{the number}; n - 15 > 2n + 8;$   
 $\{n \mid n < -23\}$

4. \_\_\_\_\_

Solve each inequality.

5.  $-2.6 \geq \frac{w}{4}$

5.  $\{w \mid w \leq -10.4\}$

6.  $-11t < -9$

6.  $\{t \mid t > \frac{9}{11}\}$

7.  $2 - 3b > \frac{11 - 15b}{7}$

7.  $\{b \mid b < 0.5\}$

8.  $5x - 3(x - 6) \leq 0$

8.  $\{x \mid x \leq -9\}$

9.  $-3x + 2(6x - 7) > 4(3 - 2x) + 17x - 8$

9.  $\emptyset$

Define a variable, write an inequality, and solve each problem.

10. Raul plans to spend no more than \$78.00 on two shirts and a pair of jeans. He bought the two shirts for \$19.89 each. How much can he spend on the jeans?

Sample answer:  
 $j = \text{cost of jeans};$   
 $2(19.89) + j \leq 78;$   
 no more than \$38.22

10. \_\_\_\_\_

11. The sum of two consecutive positive even integers is at most 15. What are the possible pairs of integers?

Sample answer:  
 $n = \text{small positive even integer};$   
 $n + n + 2 \leq 15;$   
 6, 8; 4, 6; 2, 4

11. \_\_\_\_\_

12. Susan makes 10% commission on her sales. She also receives a salary of \$25,600. How much must she sell to receive a total income between \$32,500 and \$41,900?

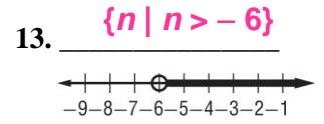
Sample answer:  
 $s = \text{amount of sales};$   
 $32,500 < 0.1s + 25,600$   
 $< 41,900;$  between \$69,000 and \$163,000

12. \_\_\_\_\_

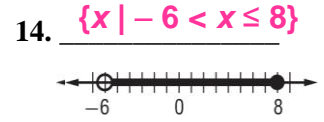
# Chapter 5 Test, Form 3 *(continued)*

Solve each compound inequality, and graph the solution set.

13.  $-\frac{n}{2} < 3$  or  $2n - 3 > 12$

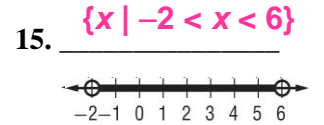


14.  $2(x - 14) - x < 7(x + 2) + x \leq x + 70$

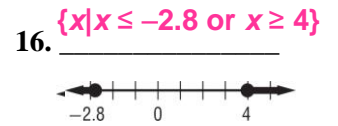


For Questions 15–17, solve each inequality. Then graph the solution set.

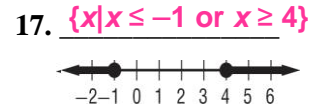
15.  $|-4x + 8| < 16$



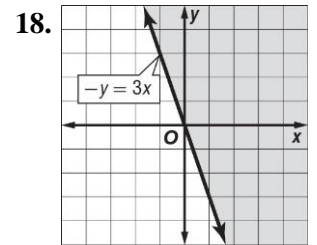
16.  $|5x - 3| \geq 17$



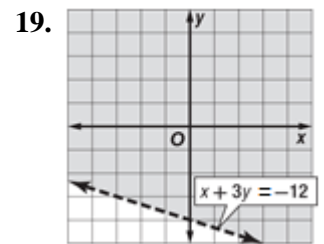
17.  $\left|\frac{3-2x}{5}\right| \geq 1$



18. Graph  $-y \leq 3x$ .



19. Graph  $x + 3y > -12$ .



20. **DOGS** Each afternoon Maria walks the dogs at a local pet shelter for up to 2 hours. Maria spends 16 minutes walking a large dog and 12 minutes walking a small dog. Write an inequality for this situation. If Maria walked 9 dogs in one afternoon, what is the greatest number of large dogs that she could have walked that afternoon?

20.  $16x + 12y \leq 120$ ; 3

**Bonus** If  $xy < 0$ , determine if the compound inequality,  $2x + 1 > 7$  and  $4 - y < 3$ , is *true* or *false*. Explain your reasoning.

False; sample answer:  $x > 3$  and  $y > 1$ . If  $xy < 0$ ,  $x$  and  $y$  cannot both be positive, so  $x > 3$  and  $y > 1$  is false.  
**B:**  $y > 1$  is false.