

NAME \_\_\_\_\_

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PER. \_\_\_\_\_

### Solving Compound Inequalities

Solve each compound inequality and graph the solution.

1.  $-3 < x + 2 < 7$



2.  $-9 \leq x - 10 < -5$



3.  $x - 4 < -7$  OR  $x + 3 > 4$



4.  $2x + 1 < 1$  OR  $3x + 2 \geq 8$



5.  $5 \leq 4x + 1 \leq 13$



6.  $11 < 2x + 3 \leq 21$



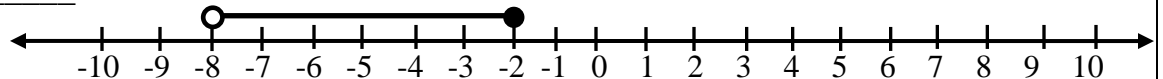
Write a compound inequality for each of the following.

7. An iguana needs to live in a warm environment. The temperature in a pet iguana's cage should be between  $70^\circ\text{F}$  and  $95^\circ\text{F}$  inclusive.

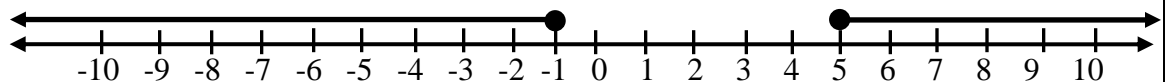
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8. \_\_\_\_\_



9. \_\_\_\_\_



**Write an inequality and solve.**

10. The Home Cleaning Company charges \$312 to power-wash the siding of a house plus \$12 for each window. Power Clean charges \$36 per window, and the price includes power-washing the siding. How many windows must a house have to make the total cost from The Home Cleaning Company less expensive than Power Clean?

11. A grocery store has 120 bottles of spring water in stock. The store orders bottles of spring water in cases of 24. The store wants to order enough cases of spring water so that it has over 500 bottles in stock. Which inequality best models this situations?

- A.  $24x + 120 > 500$       C.  $24x + 500 > 120$   
B.  $24x - 120 > 500$       D.  $24(x + 120) > 500$

12. Mel works as a waiter. He uses the linear expression  $4x + 5$  to calculate his hourly earnings, in dollars, based on the number of tables,  $x$ , that he serves. What is the fewest number of tables he must serve per hour in order to earn more than \$25 per hour?

- A. 4                                  C. 6  
B. 5                                  D. 7

13. Tammy is planting tomato and pepper plants in her garden. Each tomato plant  $t$  requires 6 square feet of space and each pepper plant  $p$  requites 4 square feet of space. Tammy's garden has an area of 150 square feet. Which inequality represents this situation?

- A.  $4t + 6p < 150$                   C.  $6t + 4p \leq 150$   
B.  $4t + 6p \geq 150$                   D.  $6t + 4p > 150$

14. If  $3b - (6 - b) = -22$ , find the value of  $7b$ .

**Answers in random order:.**  $-5 < x < 5$ ,  $1 \leq x < 5$ ,  $70 \leq x \leq 95$ ,  $1 \leq x \leq 3$ ,  $x \leq 0$  OR  $x \geq 2$ ,  
 $x < -3$  OR  $x > 1$ ,  $4 < x \leq 9$ ,  $x > 13$ ,  $-28$ ,  $-8 < x \leq -2$ ,  $x \leq -1$  OR  $x \geq 5$