

# Solving Inequalities

**Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Directions:** Show your

work clearly and check each answer when possible.

## Part A: Linear Inequalities

*Solve and reverse the inequality symbol when multiplying or dividing by a negative.*

1.  $3x + 5 < 17$

2.  $-2y + 7 \leq 13$

3.  $5a - 9 > 1$

4.  $-4b - 1 \geq -21$

5.  $7m + 3 < -11$

6.  $-3n + 8 \leq -10$

7.  $2p - 11 > 3$

8.  $-6q + 4 \geq 10$

9.  $4r + 9 < 21$

10.  $-5s - 2 \leq -22$

**Part B: Compound and Absolute Value**

*Write each solution as an inequality or compound inequality.*

11.  $8t - 7 > -31$

12.  $-2u + 12 \geq -4$

13.  $-5 < x + 2 \leq 9$

14.  $3 \leq 2y - 1 < 11$

15.  $-8 < 3a + 1 \leq 13$

16.  $-2 \leq \frac{m-4}{3} < 5$

17.  $7 > 2p + 1 \geq -5$

18.  $-10 \leq -2q + 4 < 6$

19.  $|x - 3| < 5$

20.  $|2y + 1| \leq 7$

## Solving Inequalities – Answer Key

*Equivalent algebraic forms are acceptable.*

- |                |                        |
|----------------|------------------------|
| 1. $x < 4$     | 11. $t > -3$           |
| 2. $y \geq -3$ | 12. $u \leq 8$         |
| 3. $a > 2$     | 13. $-7 < x \leq 7$    |
| 4. $b \leq 5$  | 14. $2 \leq y < 6$     |
| 5. $m < -2$    | 15. $-3 < a \leq 4$    |
| 6. $n \geq 6$  | 16. $-2 \leq m < 19$   |
| 7. $p > 7$     | 17. $3 > p \geq -3$    |
| 8. $q \leq -1$ | 18. $7 \geq q > -1$    |
| 9. $r < 3$     | 19. $-2 < x < 8$       |
| 10. $s \geq 4$ | 20. $-4 \leq y \leq 3$ |