

EXTRA PRACTICE 24
Solving Inequalities With Both Principles
Use after Section 9.1

Name _____

Examples: Solve.

a) $4 - 6x < -10$ b) $7y - 4 \geq 5y - 12$

$$-4 + 4 - 6x < -4 + (-10)$$

$$-6x < -14$$

$$-\frac{1}{6} \cdot (-6x) > -\frac{1}{6} \cdot (-14)$$

$$x > \frac{14}{6}$$

$$x > \frac{7}{3}$$

The solution set is $\left\{x \mid x > \frac{7}{3}\right\}$.

$$7y - 4 + 4 \geq 5y - 12 + 4$$

$$7y \geq 5y - 8$$

$$-5y + 7y \geq -5y + 5y - 8$$

$$2y \geq -8$$

$$\frac{1}{2} \cdot 2y \geq \frac{1}{2} \cdot (-8)$$

$$y \geq -4$$

The solution set is $\{y \mid y \geq -4\}$.

Solve.

1. $4x + 7 \leq 23$ _____

2. $3y + 4 \geq 8y - 5$ _____

3. $12y + 5 < 3y - 7$ _____

4. $0.7x < 14 - 0.3x$ _____

5. $3x + 20 - 5x \geq 5 + x$ _____

6. $-5y + 3 < -7$ _____

7. $14 - 5x > 2x + 3$ _____

8. $3y - 10 \leq 8y - 5$ _____

9. $\frac{1}{2}y - 4 < 4$ _____

10. $2 - y > y + 2$ _____

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11. $7x - 4 \leq 6x + 4$ _____

12. $55 \geq 8y - 1$ _____

13. $-3x + 2 > -25$ _____

14. $y - 8 + \frac{1}{2}y \leq -29$ _____

15. $0.3y > 0.8y - 11$ _____

16. $2x - \frac{2}{3} < \frac{1}{3} - 2x$ _____

17. $8x + 0.9 \leq -0.1$ _____

18. $0.4y - 3 \geq 2$ _____

19. $6y - 4 > 16$ _____

20. $8 - 5x \leq x + 4$ _____

21. $7 - 0.3y \leq 0.3y - 2$ _____

22. $15x - 7 - 18x > 5$ _____

23. $3 \geq 7 - 2x$ _____

24. $\frac{11}{8} - 2x < \frac{3}{8} - 3x$ _____

25. $18 - 5x < 4x - 7$ _____

26. $\frac{1}{2} \geq 2 - \frac{3}{2}y$ _____

27. $29 > 11x - 4$ _____

28. $7 - y \leq y - 7$ _____

29. $-4.3y - 14 < 72$ _____

30. $\frac{3}{5}x - 4 \geq \frac{2}{5}x + 8$ _____