

Solving Inequalities

Solve each inequality. Then graph the solution set on a number line

10. $n + 4 \geq -7$

SOLUTION:

$$n + 4 \geq -7$$

$$n + 4 - 4 \geq -7 - 4$$

$$n \geq -11$$

ANSWER:

$$n \geq -11$$

11. $b - 3 \leq 15$

SOLUTION:

$$b - 3 \leq 15$$

$$b - 3 + 3 \leq 15 + 3$$

$$b \leq 18$$

ANSWER:

$$b \leq 18$$

12. $5x < 35$

SOLUTION:

$$5x < 35$$

$$\frac{5x}{5} < \frac{35}{5}$$

$$x < 7$$

ANSWER:

$$x < 7$$

13. $\frac{d}{2} > -4$

SOLUTION:

$$\frac{d}{2} > -4$$

$$\frac{d}{2} * 2 > -4 * 2$$

$$d > -8$$

ANSWER:

$$d > -8$$

14. $\frac{g}{-3} \geq -9$

SOLUTION:

$$\frac{g}{-3} \geq -9$$

$$\frac{g}{-3} * -3 \geq -9 * -3$$

$$g \leq 27$$

ANSWER:

$$g \leq 27$$

15. $-8p \geq 24$

SOLUTION:

$$-8p \geq 24$$

$$\frac{-8p}{-8} \geq \frac{24}{-8}$$

$$p \leq -3$$

ANSWER:

$$p \leq -3$$

16. $13 - 4k \leq 27$

SOLUTION:

$$13 - 4k \leq 27$$

$$13 - 13 - 4k \leq 27 - 13$$

$$-4k \leq 14$$

$$\frac{-4k}{-4} \leq \frac{14}{-4}$$

$$k \geq -3.5, -3\frac{1}{2}$$

ANSWER:

$$k \geq -3.5, -3\frac{1}{2}$$

17. $14 > 7y - 21$

SOLUTION:

$$14 > 7y - 21$$

$$38 > 7y$$

$$\frac{38}{7} > \frac{7y}{7}$$

$$5\frac{3}{7} > y$$

ANSWER:

$$5\frac{3}{7} > y$$

18. $-27 < 8m + 5$

SOLUTION:

$$-27 < 8m + 5$$

$$-27 - 5 < 8m + 5 - 5$$

$$-32 < 8m$$

$$\frac{-32}{8} < \frac{8m}{8}$$

$$-4 < m$$

ANSWER:

$$-4 < m$$

19. $6b + 11 \geq 15$

SOLUTION:

$$6b + 11 \geq 15$$

$$6b + 11 - 11 \geq 15 - 11$$

$$6b \geq 4$$

$$\frac{6b}{6} \geq \frac{4}{6}$$

$$b \geq \frac{2}{3}$$

ANSWER:

$$b \geq \frac{2}{3}$$

20. $2(4t + 9) \leq 18$

SOLUTION:

$$2(4t + 9) \leq 18$$

$$\frac{2(4t + 9)}{2} \leq \frac{18}{2}$$

$$4t + 9 \leq 9$$

$$4t + 9 - 9 \leq 9 - 9$$

$$4t \leq 0$$

$$t \leq 0$$

ANSWER:

$$t \leq 0$$

21. $90 \geq 5(2r + 6)$

SOLUTION:

$$90 \geq 5(2r + 6)$$

$$\frac{90}{5} \geq \frac{5(2r + 6)}{5}$$

$$18 \geq 2r + 6$$

$$18 - 6 \geq 2r + 6 - 6$$

$$12 \geq 2r$$

$$\frac{12}{2} \geq \frac{2r}{2}$$

$$6 \geq r$$

ANSWER:

$$6 \geq r$$

22. $\frac{3t+6}{2} < 3t + 6$

SOLUTION:

$$\frac{3t+6}{2} < 3t + 6$$

$$2 * \frac{3t+6}{2} < 2 * (3t + 6)$$

$$3t + 6 < 6t + 12$$

$$3t - 3t + 6 < 6t - 3t + 12$$

$$6 < 3t + 12$$

$$6 - 12 < 3t + 12 - 12$$

$$-6 < 3t$$

$$\frac{-6}{3} < \frac{3t}{3}$$

$$-2 < t$$

ANSWER:

$$-2 < t$$

ANSWER:

$$n > \frac{1}{2}$$

23. $\frac{k+7}{3} - 1 < 0$

SOLUTION:

$$\frac{k+7}{3} - 1 < 0$$

$$\frac{k+7}{3} - 1 + 1 < 0 + 1$$

$$\frac{k+7}{3} < 1$$

$$\frac{k+7}{3} * 3 < 1 * 3$$

$$k + 7 < 3$$

$$k + 7 - 7 < 3 - 7$$

$$k < -4$$

ANSWER:

$$k < -4$$

24. $\frac{2n-6}{5} + 1 > 0$

SOLUTION:

$$\frac{2n-6}{5} + 1 > 0$$

$$\frac{2n-6}{5} + 1 - 1 > 0 - 1$$

$$\frac{2n-6}{5} > -1$$

$$\frac{2n-6}{5} * 5 > -1 * 5$$

$$2n - 6 > -5$$

$$2n - 6 + 6 > -5 + 6$$

$$\frac{2n}{2} > \frac{1}{2}$$

$$n > \frac{1}{2}$$