

Homework: Linear Inequalities and Absolute Value Inequalities

In Problems 1-4, express each interval in set-builder notation and graph the interval on a number line

1. $(2,4]$	2. $[-4,3]$
3. $[-6,\infty)$	4. $(-\infty,6.1)$

In Problems 5-7, Use graphs to find each set.

5. $(-5,2) \cup [-1,4]$	6. $(-\infty,3) \cup [2,5)$
7. $[2,\infty) \cap (-\infty,5)$	

In Problems 8-13, solve each linear inequality. Use interval notation to express solution sets

8. $5x - 2 \geq 9$	9. $7x - 9 \leq 2x - 5$
10. $4x - 2 < -8(x + 1)$	11. $\frac{x}{5} - \frac{1}{2} \leq \frac{x}{2} + 3$
12. $\frac{x-1}{3} \geq \frac{x-2}{4} + \frac{1}{8}$	13. $4(x+1) - 2(x+2) \geq 2x+3$

In Problems 14-15, solve each compound inequality. Use interval notation to express solution sets

14. $-5 \leq x - 3 < 2$	15. $-1 \leq \frac{2}{5}x - 1 < -2$
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In Problems 16-24, solve each absolute value inequality. Use interval notation to express solution sets

16. $ x - 3 \leq 6$	17. $ 3(x - 2) + 1 \leq 9$
18. $ x > 5$	19. $ 5x - 1 > 9$
20. $\left 2 - \frac{1}{5}x\right > 1$	21. $-3 x - 5 \geq -9$

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$$22. 7 \leq |3x - 5|$$

$$23. 2 < |5 - 2x|$$

$$24. 2 + \left| 4 - \frac{x}{4} \right| \geq 7$$