

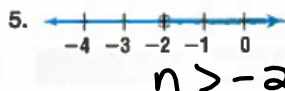
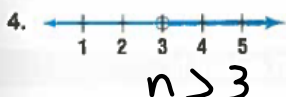
CHAPTER 12

Test

at least, no more than, does not exceed, etc.

- List at least three verbal phrases that are used to describe inequalities.
- If you multiply or divide each side of an inequality by a negative number, what must happen to the symbol for the inequality to remain true?
reverse (flip) the symbol
ex. > to <
- Before solving an inequality involving absolute value, which two cases must you consider?
whether the expression is ① positive or ② negative

Write an inequality for each graph.



Solve each inequality. Check your solution.

- | | |
|-----------------------------------|--|
| 6. $2 + x \geq 12$ $x \geq 10$ | 7. $5t + 6 \leq 4t - 3$ $t \leq -9$ |
| 8. $8 < -4t$ $t < -2$ | 9. $-0.2x > -6$ $x < 30$ |
| 10. $\frac{t}{4} > 1$ $t > 4$ | 11. $-\frac{2}{5}m \leq 10$ $m \geq -25$ |
| 12. $-3r - 1 \geq -16$ $r \leq 5$ | 13. $7x - 12 < 30$ $x < 6$ |
| 14. $2(h - 3) > 6$ $h > 6$ | 15. $8(1 - 2z) \leq 25 + z$ $z \geq -1$ |

Solve each inequality. Graph the solution.

see next page

- | | |
|---|-------------------------------------|
| 16. $x + 1 > -2$ and $x + 1 < 6$ | 17. $4 < 3j - 2 \leq 7$ |
| 18. $2n + 5 \geq 15$ or $2n + 5 \leq 3$ | 19. $-6c > -24$ or $c + 0.25 < 1.3$ |
| 20. $ x + 3 \geq 4$ | 21. $ 4b \leq 16$ |

Graph each inequality.

- | | |
|--------------------------------------|-------------------------------------|
| 22. $y \geq 5x - 6$ <i>see notes</i> | 23. $4x - 2y > -6$ <i>see notes</i> |
|--------------------------------------|-------------------------------------|

24. **Car Rental** Justine is renting a car that costs \$32 a day with free unlimited mileage. Since she is under the age of 25, it costs her an additional \$10 per day. Justine does not want to pay any more than \$200 on car rental costs. For what number of days can she rent a car?
 $d \leq 4 \rightarrow$ 4 or fewer days

25. **Manufacturing** Ball bearings are used to connect moving parts and minimize friction. Ball bearings for an automobile will work properly only if their diameter is within 0.01 inch, inclusive, of 5 inches. Write and solve an inequality to represent the range of acceptable diameters for these ball bearings.

$$|m - 5| \leq 0.01$$

$$4.99 \leq m \leq 5.01$$

$$\begin{aligned} -(m - 5) &\leq 0.01 \\ -m + 5 &\leq 0.01 \\ -5 &= -5 \\ \hline m &\leq \frac{4.99}{-1} \\ m &\geq -4.99 \end{aligned}$$



$$16) \quad -3 < x < 5$$



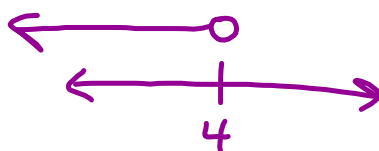
$$17) \quad 2 < j \leq 3$$



$$18) \quad n \leq -1 \text{ or } n \geq 5$$



$$19) \quad c < 4$$



$$20) \quad x \leq -7 \text{ or } x \geq 1$$



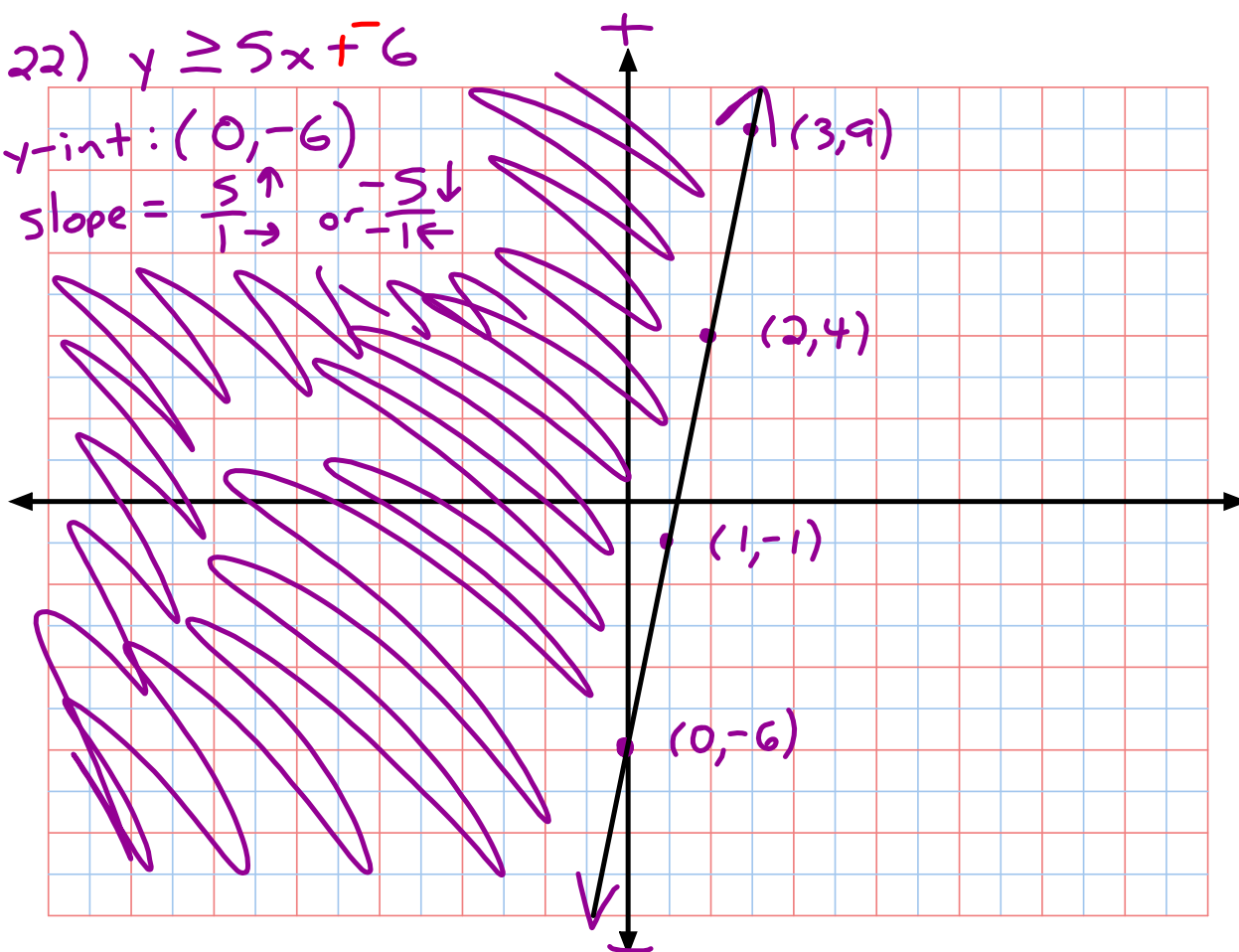
$$21) \quad -4 \leq b \leq 4$$



$$22) y \geq 5x + 6$$

$$y\text{-int: } (0, -6)$$

$$\text{slope} = \frac{5}{1} \rightarrow \text{or } \frac{-5}{-1} \leftarrow$$



$$\begin{aligned} 23) \quad & \cancel{4x} - 2y > -6 \\ & \cancel{+ -4x} \quad \quad \quad = + -4x \\ \hline & \frac{-2y}{\ominus 2} > \frac{-4x}{\ominus 2} + \frac{-6}{\ominus 2} \\ & y < 2x + 3 \end{aligned}$$

cont'd
23) $y < 2x + 3$

y-int: $(0, 3)$

slope: $\frac{2 \uparrow}{1 \rightarrow}$ or $\frac{-2 \downarrow}{-1 \leftarrow}$

