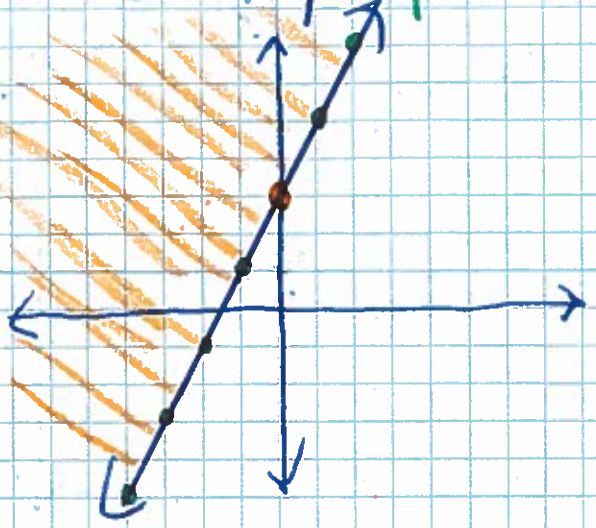
2.7 Linear Inequalities

Day 19

Graph $y = 2x + 3$



$y \geq 2x + 3$

Greater than or equal too
- solid line
- shade above

$\leq \geq$ solid $\longleftrightarrow$

$< >$ dashed $\longleftarrow - - - - \longrightarrow$

Greater than $\geq$ or $>$

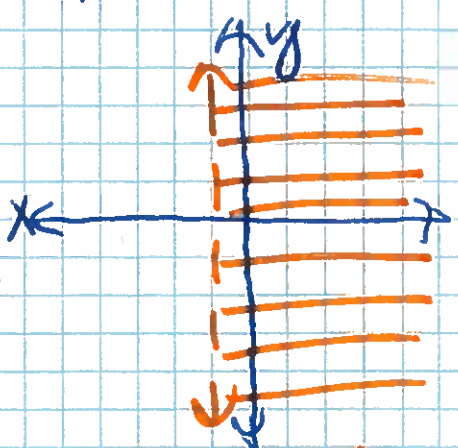
shade above diagonal and horizontal Lines or to the right of vertical lines

← calculator upper triangle

$y > -2$

- Horizontal Line
- dashed
- $>$, shade above

$x > -1$



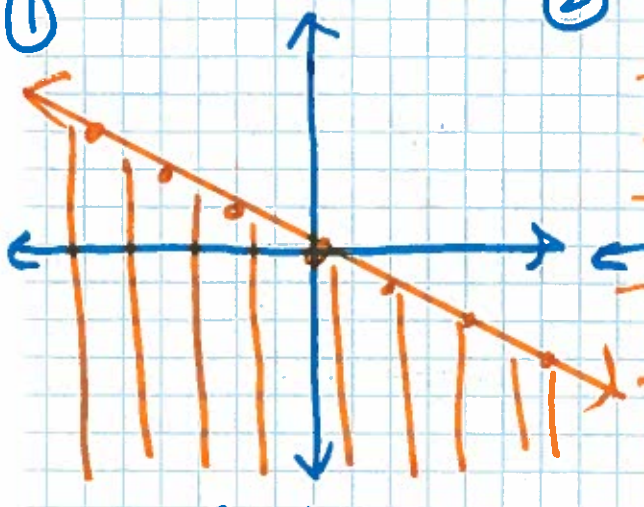
Vertical dashed

Less Than

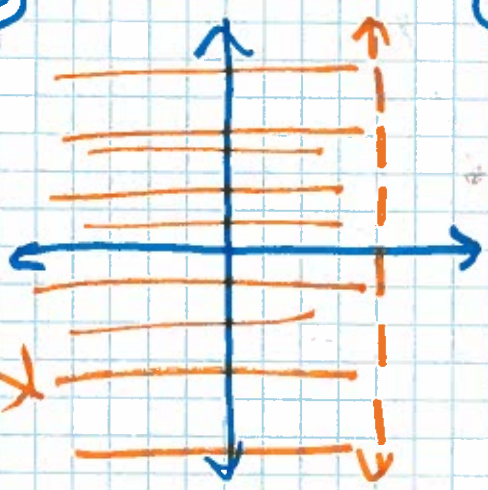
$<$ or $\leq$

dashed solid

Shade Below the diagonal or Horizontal Line AND to the Left of Vertical Lines

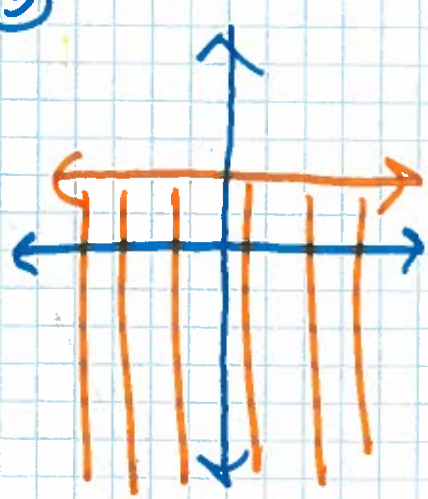
① 

$y \leq -\frac{1}{2}x + 0$

② 

$x < 4$

vertical dashed

③ 

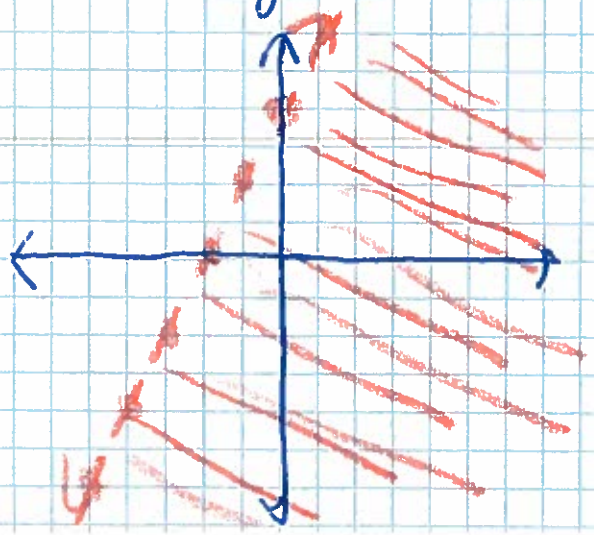
$y \leq 2$

④ $4x - 2y > -8$

$-4x \quad -4x$

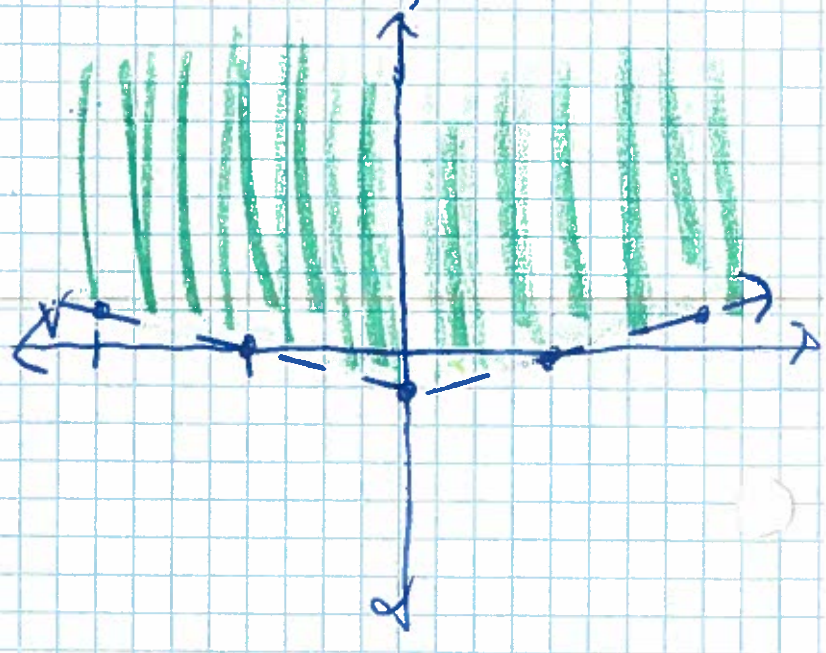
$\frac{-2y}{-2} > \frac{-4x}{-2} \frac{-8}{-2}$

$y < 2x + 4$



⑤ $y > \left|\frac{1}{4}x\right| - 1$

dashed, shade above



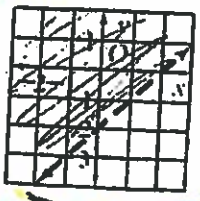
Name _____ Class _____ Date _____

Alg 2 Practice 2-7

Two-Variable Inequalities

Write an inequality for each graph. In each case, the equation for the boundary line is given.

1. $y = x - 2$

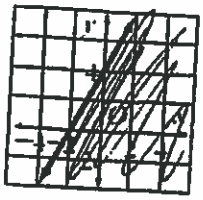


$y > x - 2$

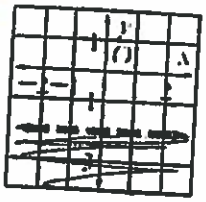
2. $x - 2y = 4$

$y \geq \frac{1}{2}x - 2$

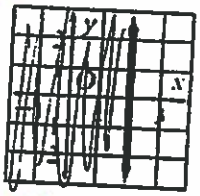
3. $y - 2x = 4$



4. $y = -2$

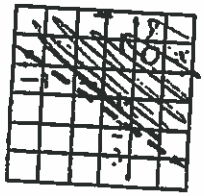


5. $x = 2$

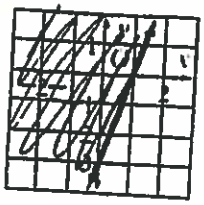


$x \quad 2$

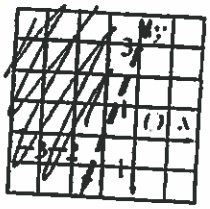
6. $-2x - 3y = 6$



7. $3x - y = 3$



8. $y - 3x = 3$



Graph each inequality on a coordinate plane. Solve for y first, if necessary. Evens only

9. $y < x$
10. $y \geq x$
11. $y > 2$
12. $y < 2$
13. $x \leq 2$
14. $x > 2$
15. $y \geq |x|$
16. $y > -2x + 1$
17. $y \geq 3x - 4$
18. $4x + 2y \leq 8$
19. $4x - 2y \leq 4$
20. $4y - 2x \geq 4$
21. $y > |x + 2|$
22. $y \leq |x - 2|$
23. $y > |x| + 2$
24. $y < |x| - 2$
25. $y \leq |4x| + 1$
26. $y \geq \left|\frac{1}{6}x\right| - 3$
27. $y > -\frac{1}{6}x - 1$
28. $3x \leq 5y$ → $5y \geq 3x$ Then solve for y

29. You need to make at least 150 sandwiches for a picnic. You are making tuna sandwiches and ham sandwiches.

T H

   a. Write an inequality for the number of sandwiches you can make. $T + H \geq 150$

   b. Graph the inequality.

   c. Does the point (90, 80) satisfy the inequality? Explain. _____

30. A salesperson sells two models of vacuum cleaners. One brand sells for \$150 each, and the other sells for \$200 each. The salesperson has a weekly sales goal of at least \$1800.

   a. Write an inequality relating the revenue from the vacuum cleaners to the sales goal.

   b. Graph the inequality.

   c. If the salesperson sold exactly six \$200 models last week, how many \$150 models did she have to sell to make her sales goal? _____