

Bell Work

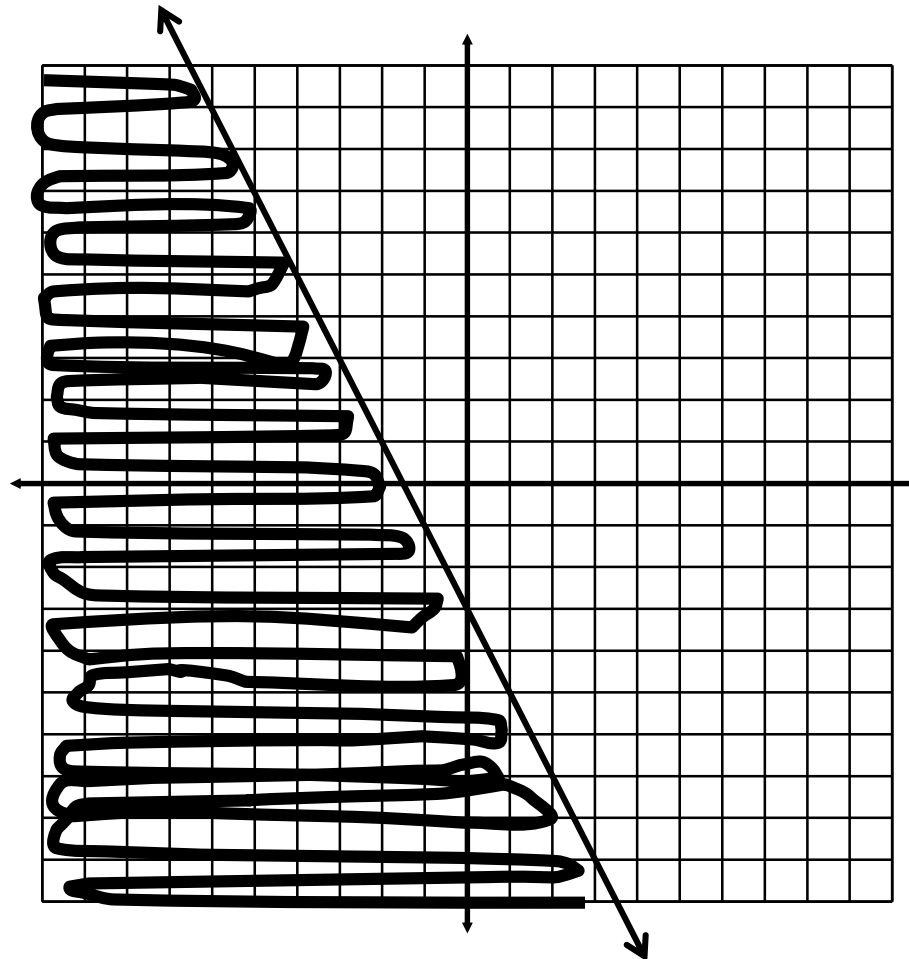
1. What is the point-slope formula?
2. What is the equation of a line in slope-intercept form that goes through $(3, 7)$ and $(-2, -3)$? Show all work.
3. Solve and show all work. $2(x + 8) = 8x - 9$
4. What is the domain in interval notation of the linear parent function?

Today, you will graph linear inequalities.

$$y > \frac{3}{4}x - 6$$

$$2x + 3y > -9$$

$$y + 5 \leq \frac{1}{2}(x - 3)$$



Graph $y > \frac{3}{4}x - 6$

1. Graph the line.

Point: $(0, -6)$

Slope: $\frac{3}{4}$

2. $< & >$: dotted line

$\leq & \geq$: solid line

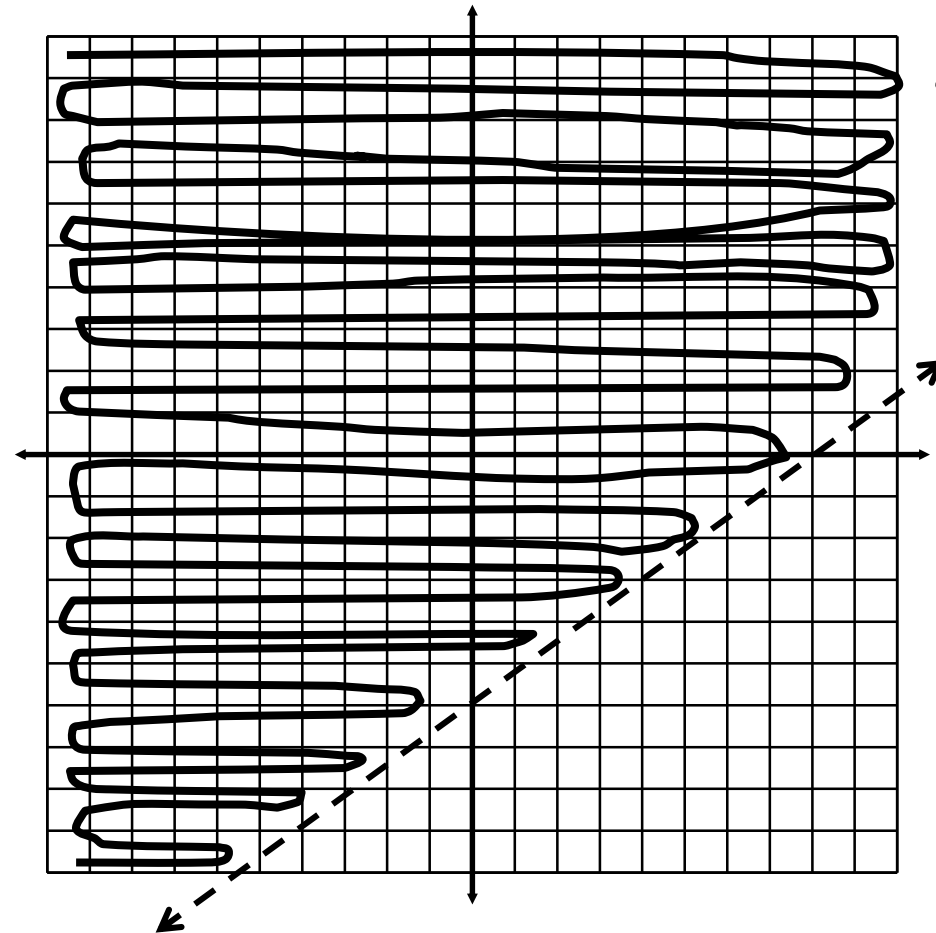
3. Pick a point. $(0, 0)$

4. Substitute it into the inequality.

5. Shade the true side.

$$0 > \frac{3}{4}(0) - 6$$
$$0 > -6$$

True



You shade the side that has $(0, 0)$ because the points on the same side as $(0, 0)$ makes the inequality true.

Graph $y \geq \frac{1}{2}x + 4$

1. Graph the line.

Point: $(0, 4)$

Slope: $\frac{1}{2}$

2. $<$ & $>$: dotted line

\leq & \geq : solid line

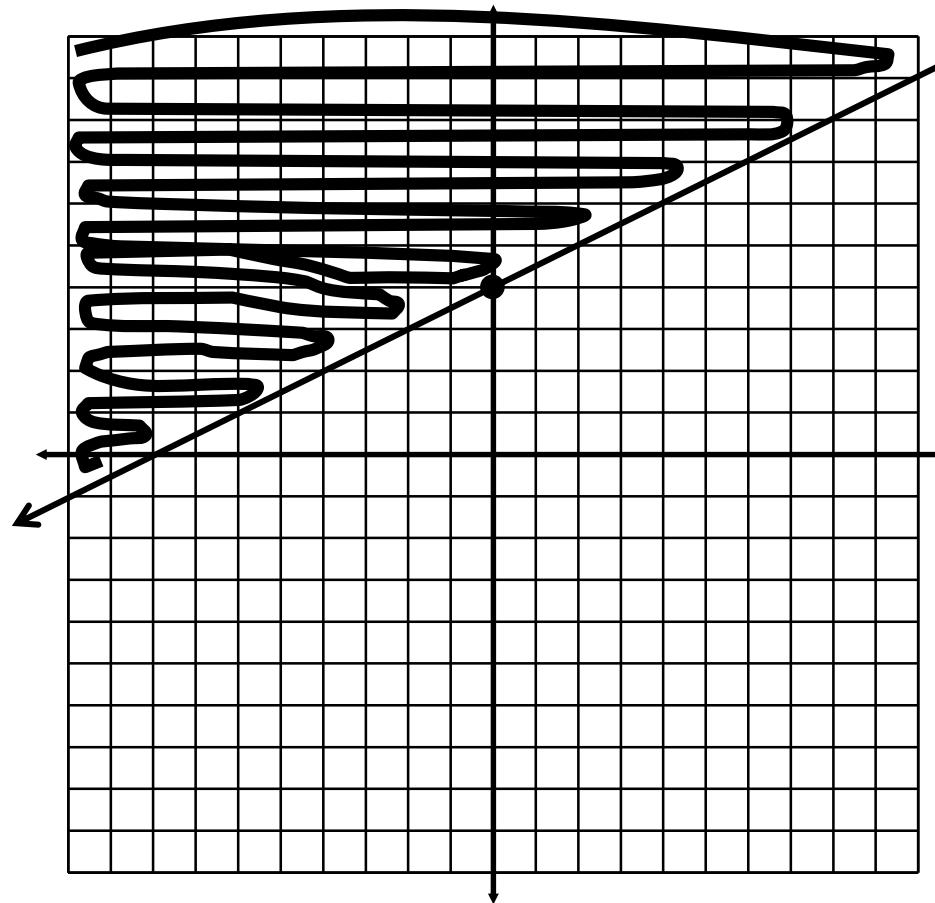
3. Pick a point. $(0, 0)$

4. Substitute it into the inequality.

5. Shade the true side.

$$0 \geq \frac{1}{2}(0) + 4$$

$$0 \geq 4 \quad \text{False}$$



You shade the other side that has $(0, 0)$ because the points on the same side as $(0, 0)$ makes the inequality false.

Graph $y \leq -2x - 3$

1. Graph the line.

Point: $(0, -3)$

Slope: $-\frac{2}{1}$

2. $< \>$: dotted line

$\leq \& \geq$: solid line

3. Pick a point. $(0, 0)$

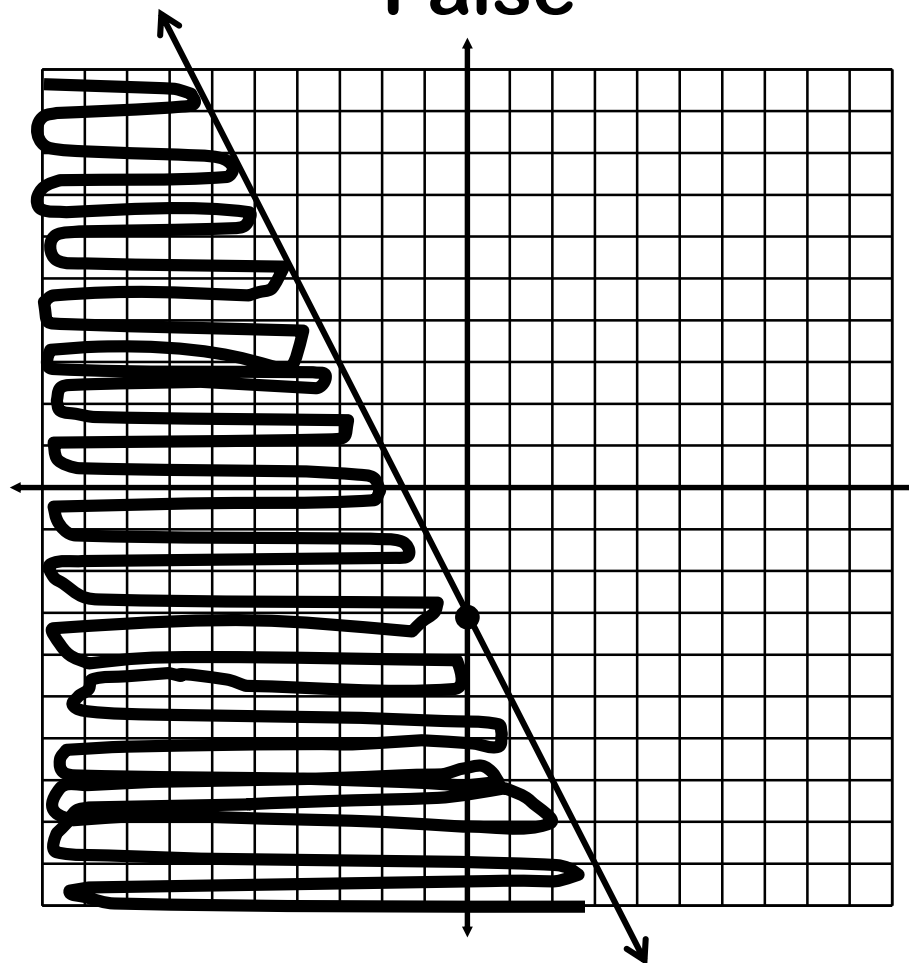
4. Substitute it into the inequality.

5. Shade the true side.

$$0 \leq -2(0) - 3$$

$$0 \leq -3$$

False



You shade the other side that has $(0, 0)$ because the points on the same side as $(0, 0)$ makes the inequality false.

Graph $2x + 3y > -9$

1. Graph the line.

Point: $(0, -3)$ $(-4.5, 0)$

Slope: $-\frac{2}{3}$

2. $<$ & $>$: dotted line

\leq & \geq : solid line

3. Pick a point. $(0, 0)$

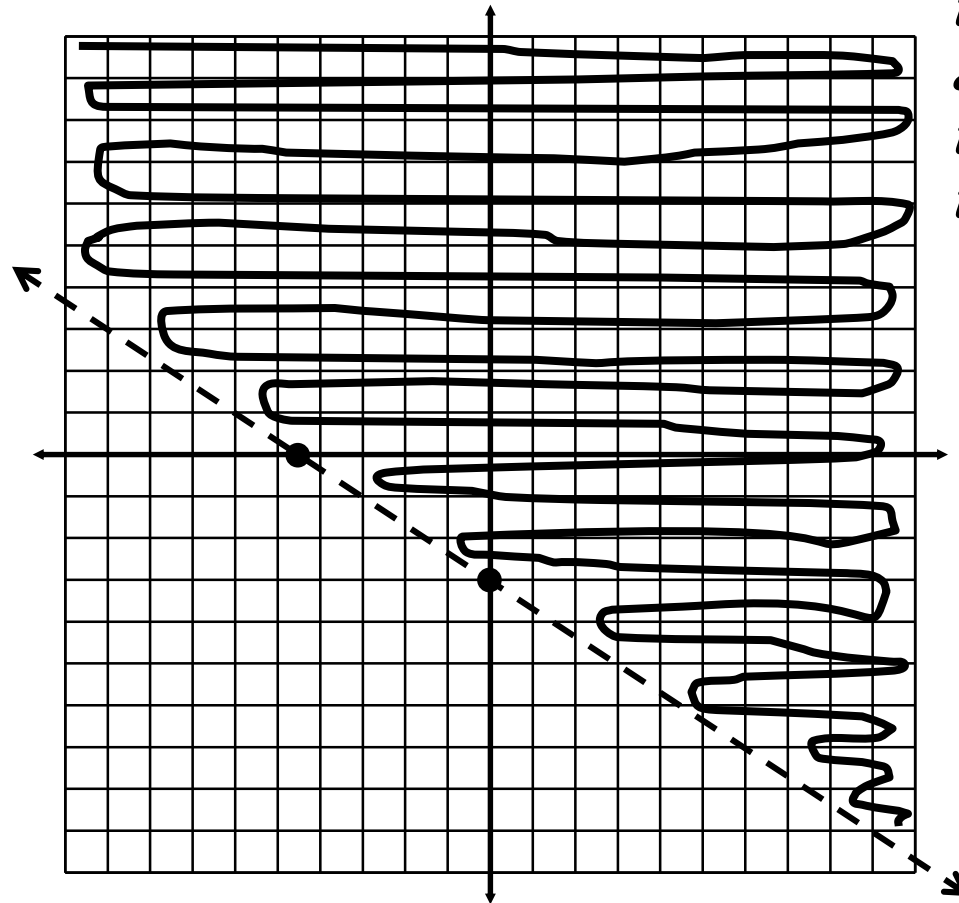
4. Substitute it into the inequality.

5. Shade the true side.

$$2(0) + 3(0) > -9$$

$$0 > -9$$

True



You shade the side that has $(0, 0)$ because the points on the same side as $(0, 0)$ makes the inequality true.

Graph $y + 5 < \frac{1}{2}(x - 3)$

1. Graph the line.

Point: $(3, -5)$

Slope: $\frac{1}{2}$

2. $< & >$: dotted line

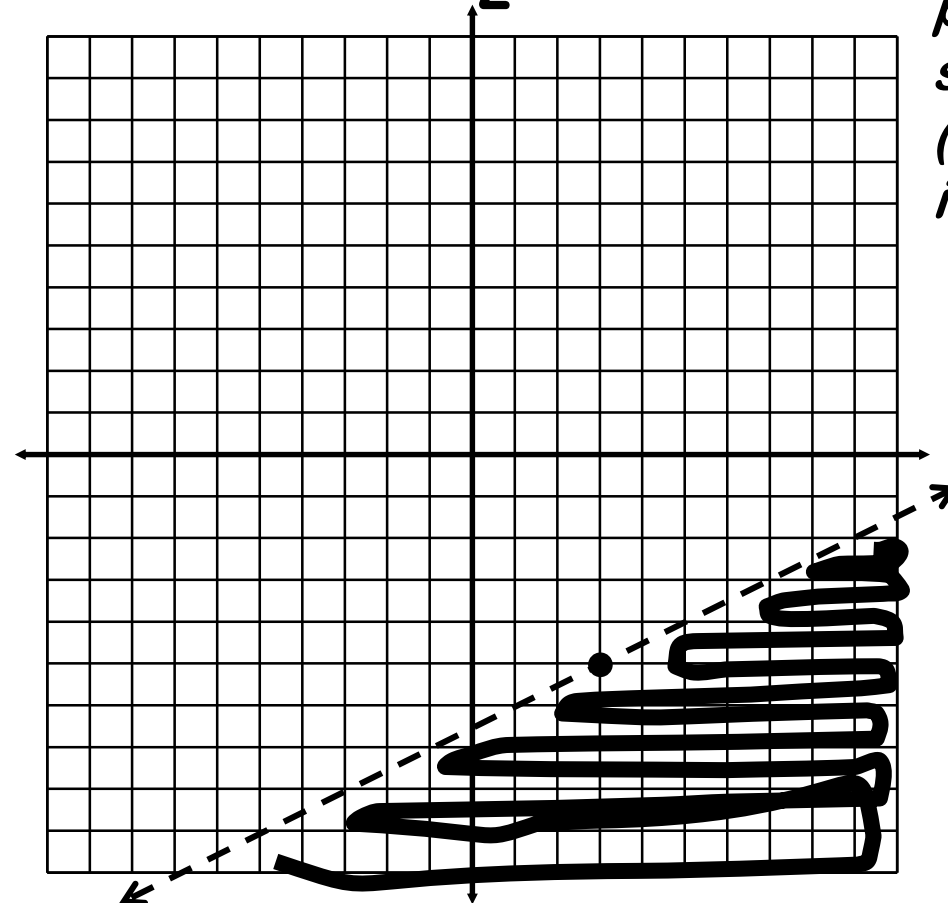
$\leq & \geq$: solid line

3. Pick a point. $(0, 0)$

4. Substitute it into the inequality.

5. Shade the true side.

$$0 + 5 < \frac{1}{2}(0 - 3)$$
$$5 < -\frac{3}{2} \quad \text{False}$$



You shade the other side that has $(0, 0)$ because the points on the same side as $(0, 0)$ makes the inequality false.

Graph $8(x + 1) \geq y + 4x$

1. Graph the line.

Point: $(0, 8)$

Slope: $\frac{4}{1}$

2. $< \& \gt$: dotted line

$\leq \& \geq$: solid line

3. Pick a point. $(0, 0)$

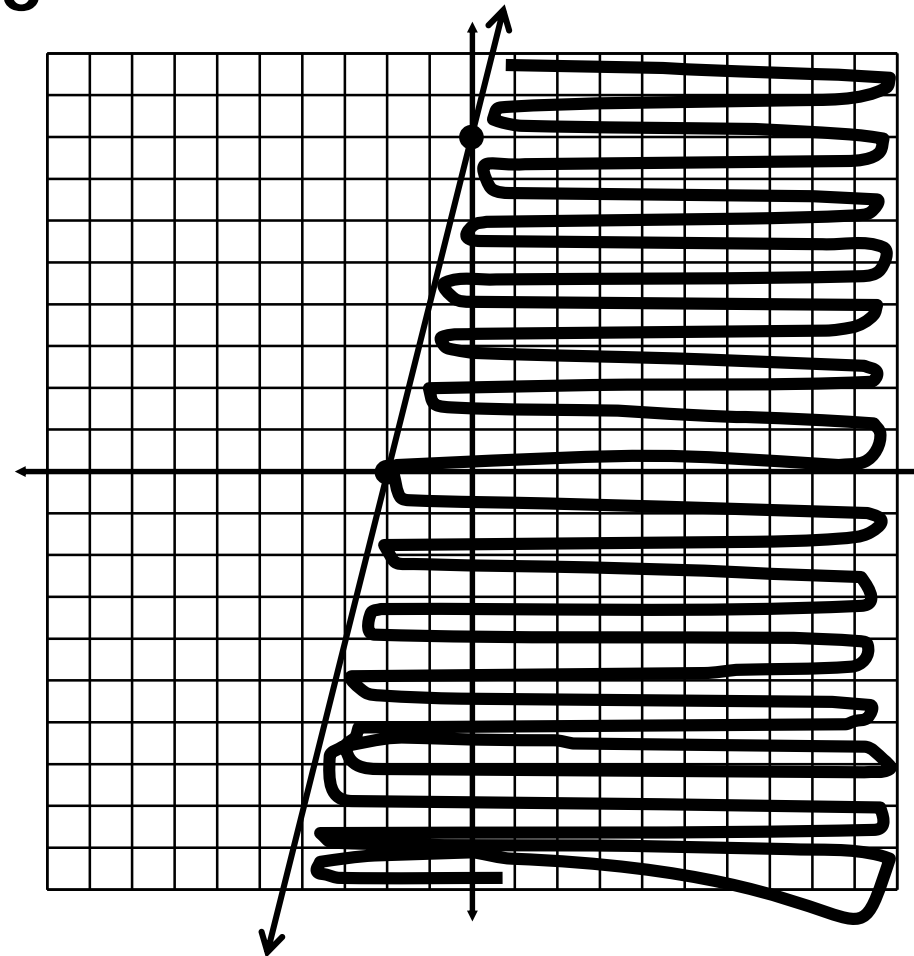
4. Substitute it into the inequality.

5. Shade the true side.

Change to
 $y \leq 4x + 8$

$$0 \leq 4(0) + 8$$

$$0 \leq 8 \quad \text{True}$$



You shade the side that has $(0, 0)$ because the points on the same side as $(0, 0)$ makes the inequality true.

Graph $y > 6$ *Horizontal line*

$x = \#$ would be a vertical line

1. Graph the line.

Point:

Slope:

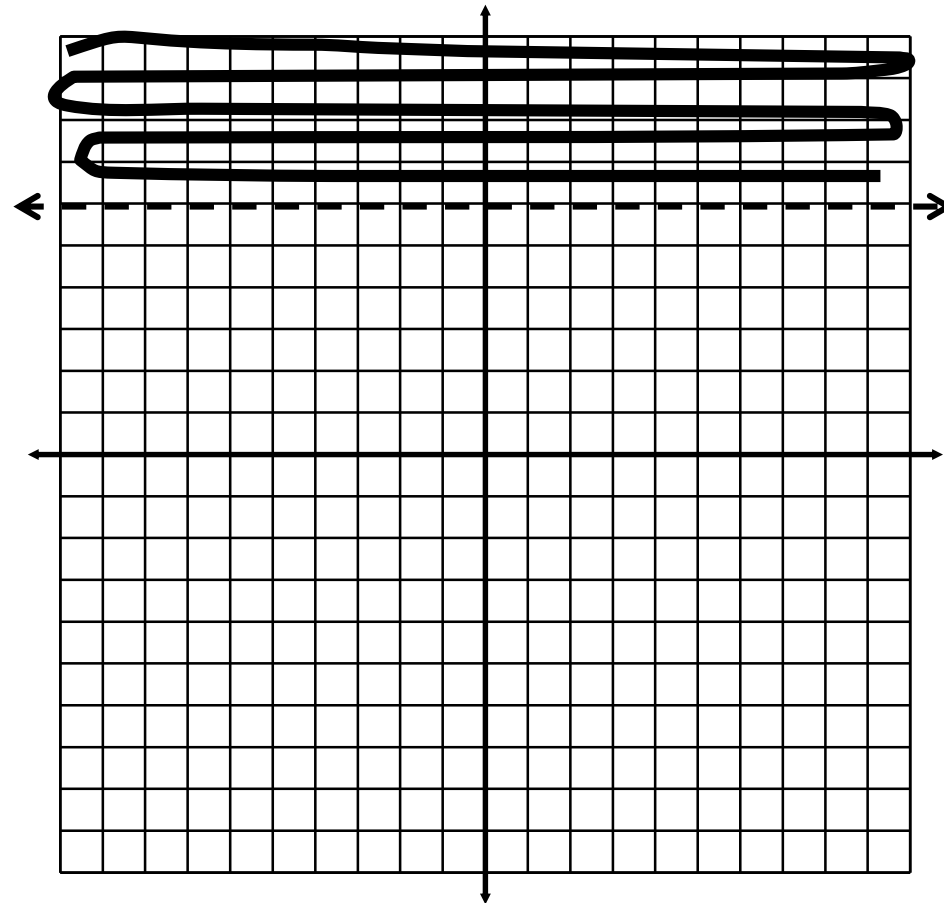
2. $<$ & $>$: dotted line

\leq & \geq : solid line

3. Pick a point. $(0, 0)$

4. Substitute it into the inequality.

5. Shade the true side.



Assignment:

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Graph each inequality.

14. $y \geq 6$

15. $y < x + 4$

16. $y > -\frac{2}{5}x - 3$

Graph each inequality using intercepts.

17. $4x + 2y \geq 8$

18. $3x - 6y < 12$

Solve each inequality for y . Graph the solution.

22. $-4y < 4(3x - 5)$

23. $-3(-10x + 2y) \geq 24$

24. $-\frac{1}{3}x + \frac{1}{5}y \leq -1$

Graph each inequality.

25. $-4y > 10x - 20$

26. $y - 5 \geq 4(x - 2)$

27. $6x + 3y < 0$

28. $y + \frac{3}{4} \leq \frac{5}{2} \left(x - \frac{1}{2} \right)$

29. $\frac{9 - 3y}{2} \geq 6x$

30. $x \leq 4$

31. $4x - 5y < 7x - 3y$

32. $2x - 5y \leq -4x + 15$

33. $x > -2$