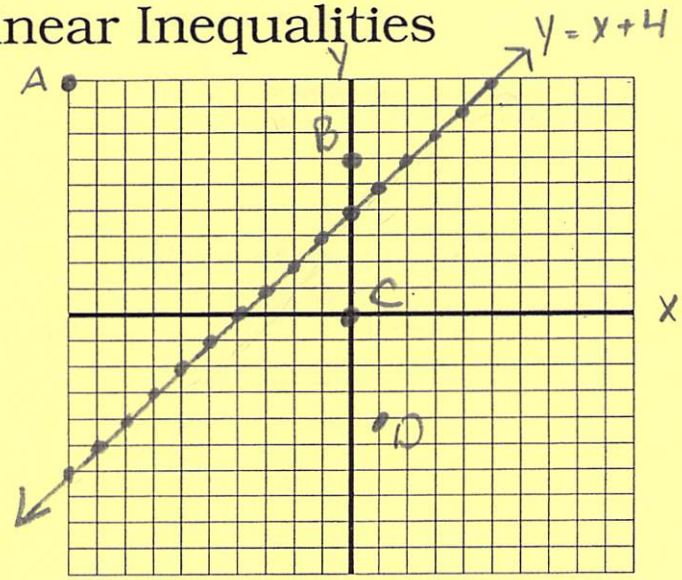
7-5 Graphing Linear Inequalities

Graph the line y = x + 4 on the coordinate plane.



2. Select any two points that lie above the line. Substitute the x and y coordinates of those points into the inequality: y > x + 4. If the coordinates check, plot the points on your graph.

Point A (-10, 9) $y > x + 4$ $9 > -10 + 4$ $9 > -6$ ✓	Point B (0, 6) $y > x + 4$ $6 > 0 + 4$ $6 > 4$ ✓

3. Select any two points that lie below the line. Substitute the x and y coordinates of those points into the inequality y < x + 4. If the results are true, plot the points on your graph.

Point C (0, 0) $y < x + 4$ $0 < 0 + 4$ $0 < 4$ ✓	Point D (1, -4) $y < x + 4$ $-4 < 1 + 4$ $-4 < 5$ ✓

4. If you were to plot all the possible points that would check in the inequality y ≥ x + 4, where would all the points lie?

ABOVE the Line

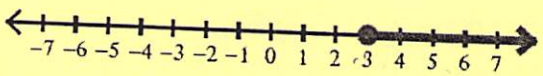
What about if you were to plot all the possible points that would check in the inequality y ≤ x + 4, where would all the points lie?

BELOW the Line

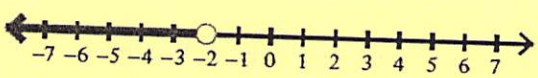
Where on the graph would points that check in y = x + 4 be?

ON the Line

Remember our Inequality Line Graphs



$x \geq 3$



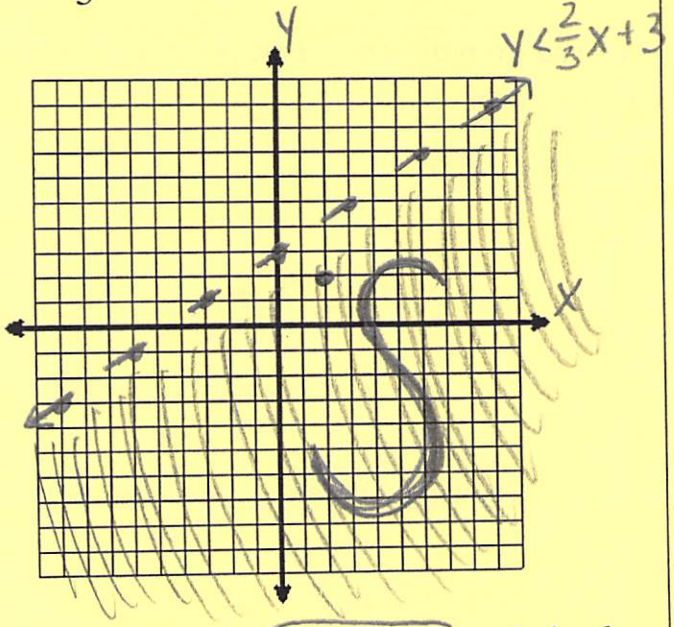
$x < -2$

Summary of Graphing Linear Inequalities

Symbol	Shading	Line Type
≤	Below Line	⟷
≥	Above Line	⟷
<	Below Line	←- - -→
>	Above Line	←- - -→

Graph Linear Inequalities

1. $y < \frac{2}{3}x + 3$



Name a point in the solution set and check mathematically.

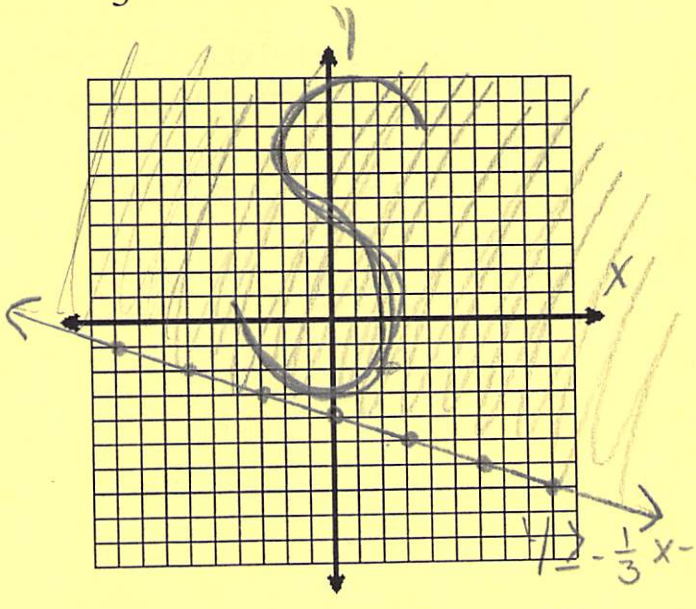
(2, 2)

$y < \frac{2}{3}x + 3$

$2 < \frac{2}{3}(2) + 3$

$2 < 1.33 + 3$ $\quad 2 < 4.33$ ✓

2. $y \geq -\frac{1}{3}x - 4$



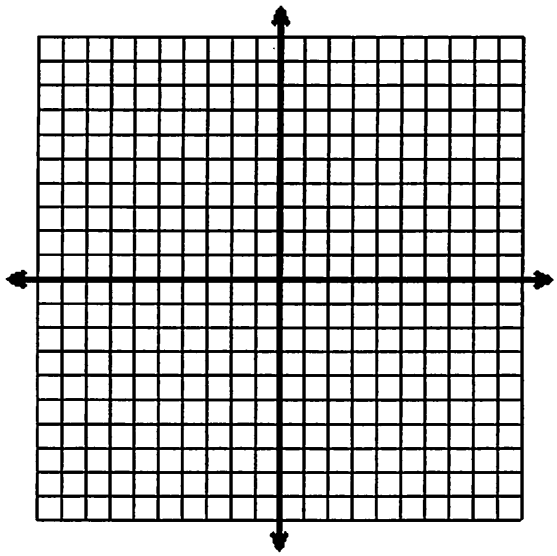
Is the point (1 , -2) in the solution set?

YES!

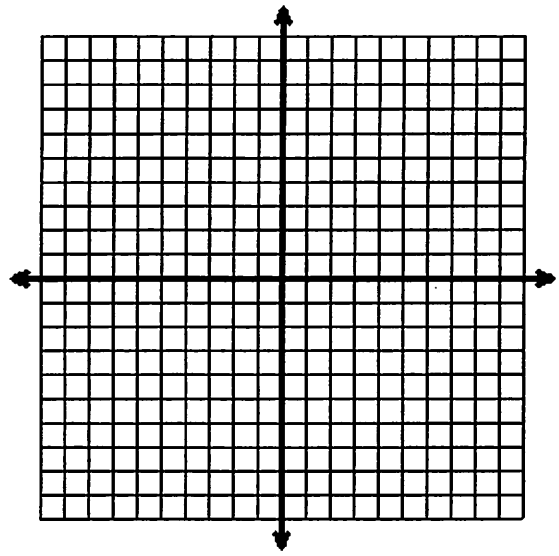
Practice 7-5

Name_____

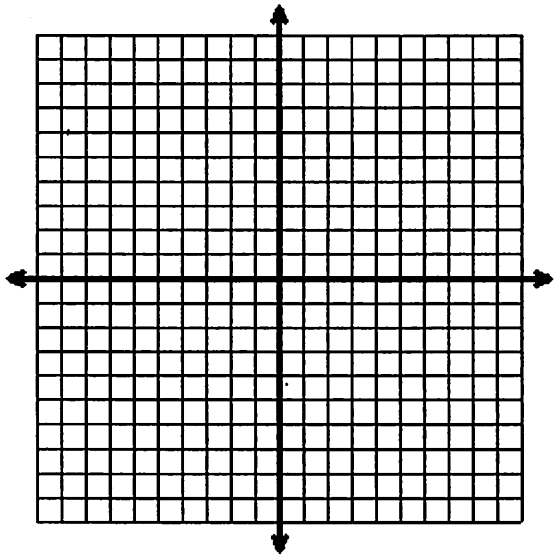
1. $y < 2x - 1$



2. $y \geq \frac{4}{3}x + 2$



3. $y \leq -3x + 4$



4. $2y \geq x - 6$