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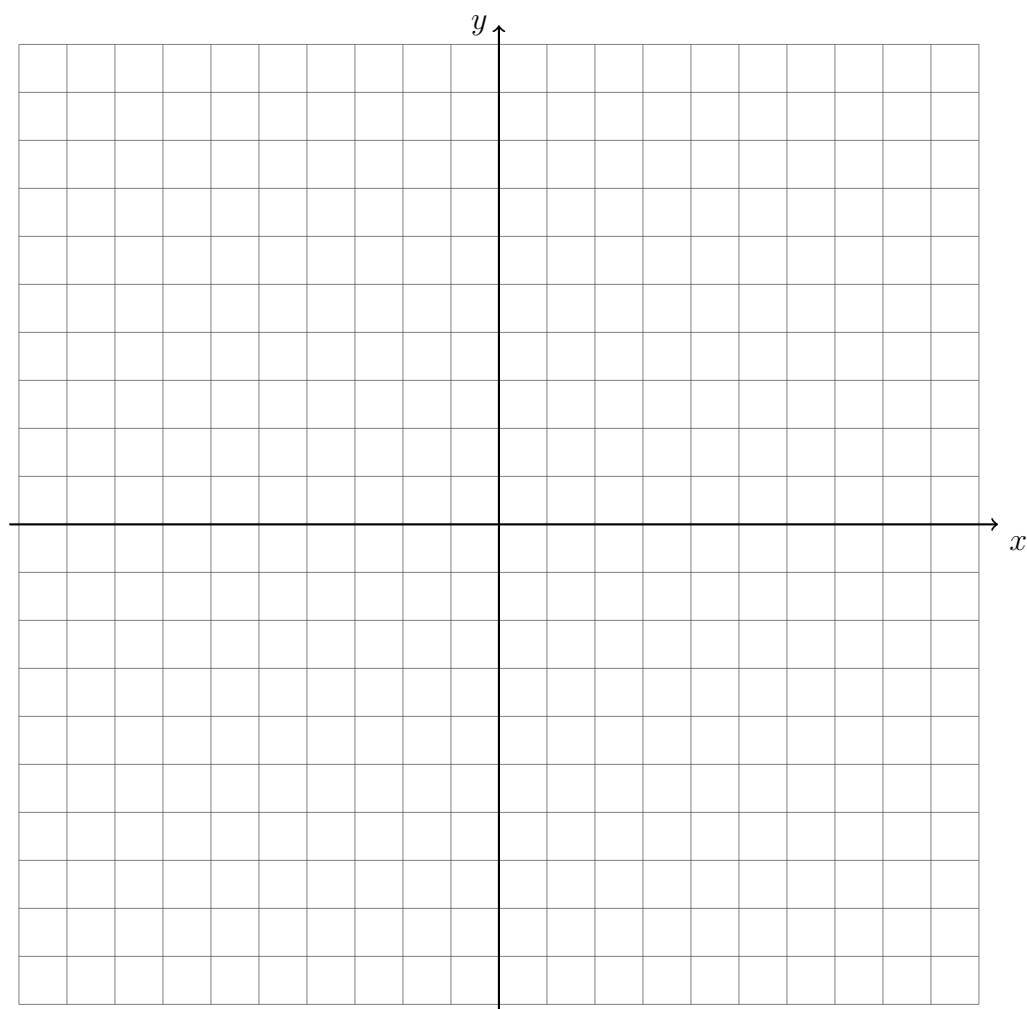
**Classwork: Graphing inequalities**

For graphs, use a pencil and straight edge. Label each line.

1. Solve for  $y$ , then graph the two inequalities.

$$y < x + 2$$

$$x + 2y \leq -5$$



Mark the solution set with a capital “S”. Is the point  $(-3, -1)$  a solution? Justify your answer.

2. Does the table represent a linear function? Justify your answer.

$x$	$f(x)$
-4	7
-2	3
-1	1
0	-1
1	-3
2	-5
4	-9

Name: \_\_\_\_\_

### Do Now: Graphing inequalities

Show your work. For graphs, use a pencil and straight edge. Graph the inequality after filling in the values in the blanks and circling the correct types.

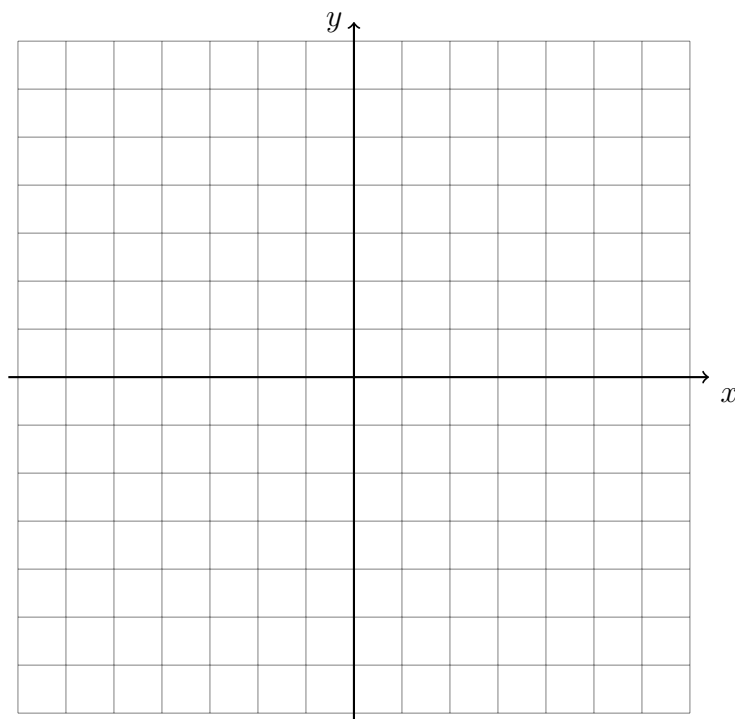
1.  $\frac{3}{2}x - 2y \leq +2$

$y$ -intercept  $b =$  \_\_\_\_\_

Line:          Solid (=)      Dashed ( $\neq$ )

Slope           $m =$  \_\_\_\_\_

Shading:      Above ( $y >$ )      Below ( $y <$ )



2. Solve for  $y$ , then complete.  $\frac{3}{2}x - 3y \geq 6$

$y$ -intercept  $b =$  \_\_\_\_\_

Line:          Solid (=)      Dashed ( $\neq$ )

Slope           $m =$  \_\_\_\_\_

Shading:      Above ( $y >$ )      Below ( $y <$ )

3. Graph the two inequalities after filling in the values in the blanks.

$$y \geq -3x + 1$$

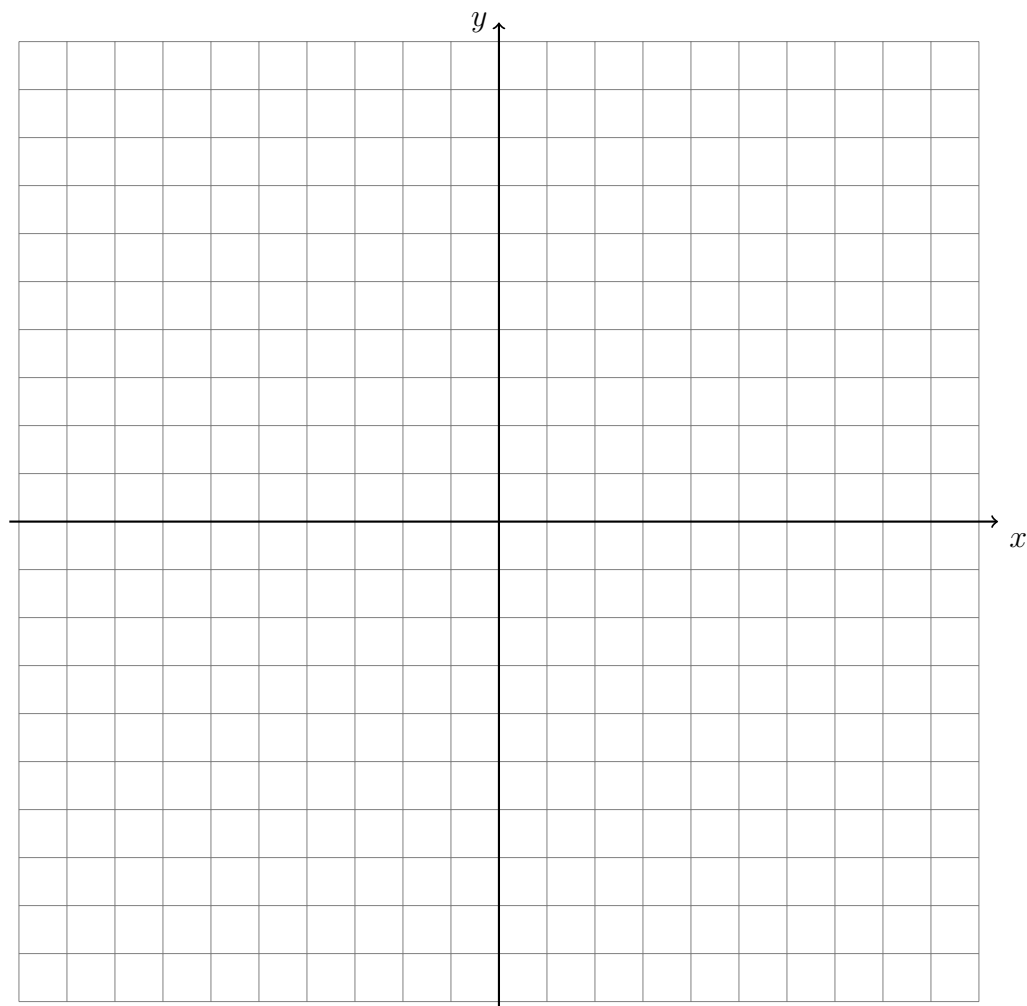
(a)  $y$ -intercept  $b =$  \_\_\_\_\_

(b) Slope  $m =$  \_\_\_\_\_

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

(a)  $y$ -intercept  $b =$  \_\_\_\_\_

(b) Slope  $m =$  \_\_\_\_\_



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## Rate of change

4. Find the slope of the function from the ratio of the line differences.

(a)

$x$	$f(x)$
-2	-2
-1	0
0	2
1	4
2	6

Change in  $y$  = \_\_\_\_\_

Change in  $x$  = \_\_\_\_\_

Slope  $m$  = \_\_\_\_\_

(b)

$x$	$f(x)$
-4	9
-2	6
0	3
2	0
4	-3

Change in  $y$  = \_\_\_\_\_

Change in  $x$  = \_\_\_\_\_

Slope  $m$  = \_\_\_\_\_

5. Find the slope of the function. If the rate of change is not constant, write, "Non-linear. The rate of change is not constant."

(a)

$x$	$f(x)$
-3	0
-1	-2
0	-3
1	-4
3	-6

Slope  $m$  = \_\_\_\_\_

(b)

$x$	$f(x)$
-4	7
-2	5
0	3
2	5
4	7

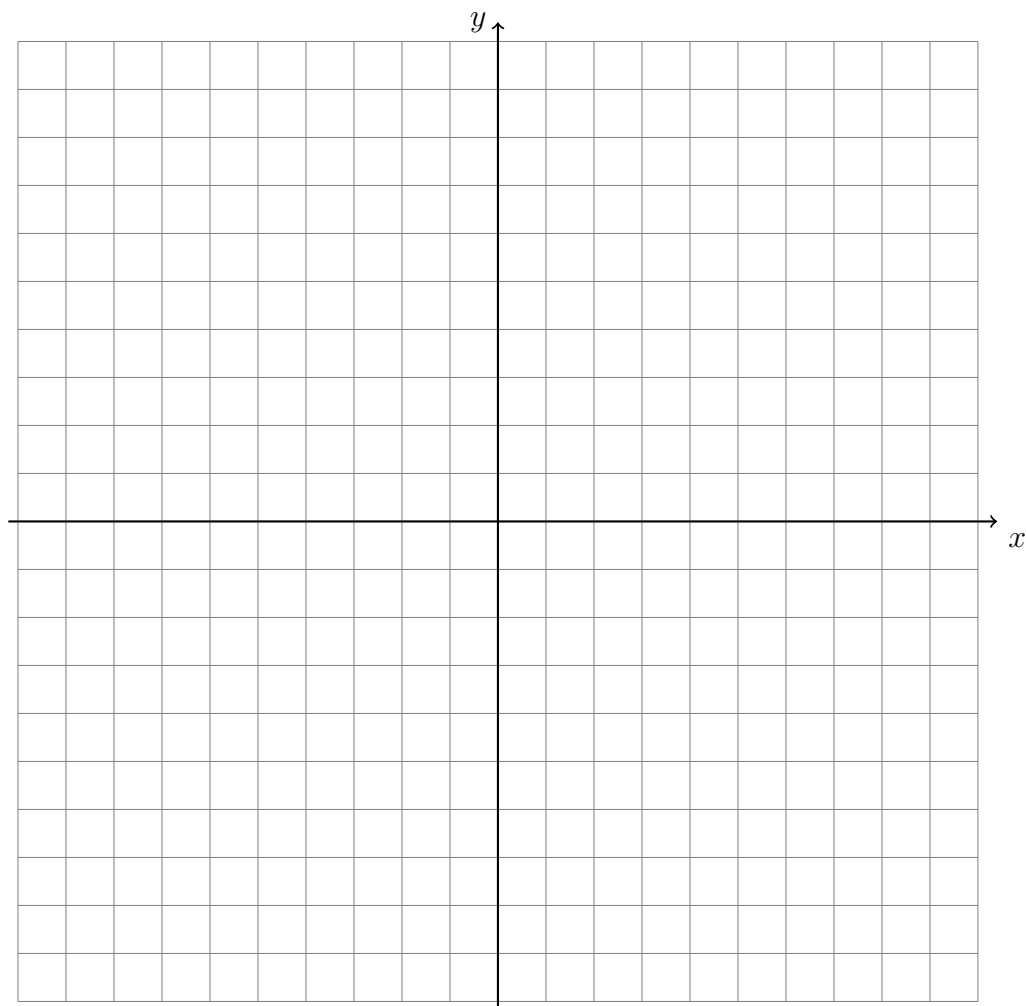
Slope  $m$  = \_\_\_\_\_

### Graphing quadratic functions

6. Given the quadratic function  $f(x) = x^2 - 2$ , find the row differences.

$x$	$f(x)$
-3	7
-2	2
-1	-1
0	-2
1	-1
2	2
3	7

Graph the function as a line over the domain  $-3 \leq x \leq 3$ .



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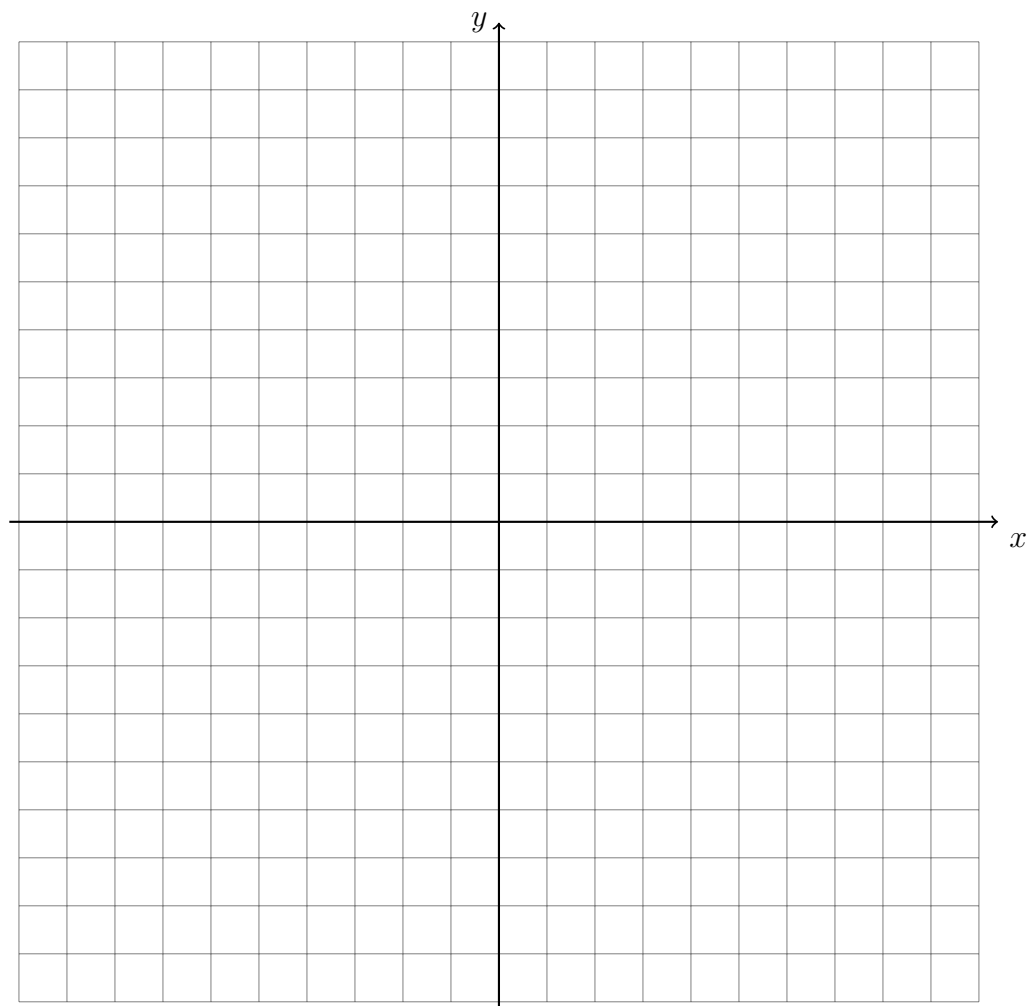
### Pop Quiz: Graphing systems and inequalities

Use pencil for graph (1 point)

1. Solve for  $y$ , then graph the two lines. Label both lines and the solution to the system, the intersection, as a coordinate pair. (3 points)

$$y = 2x + 4$$

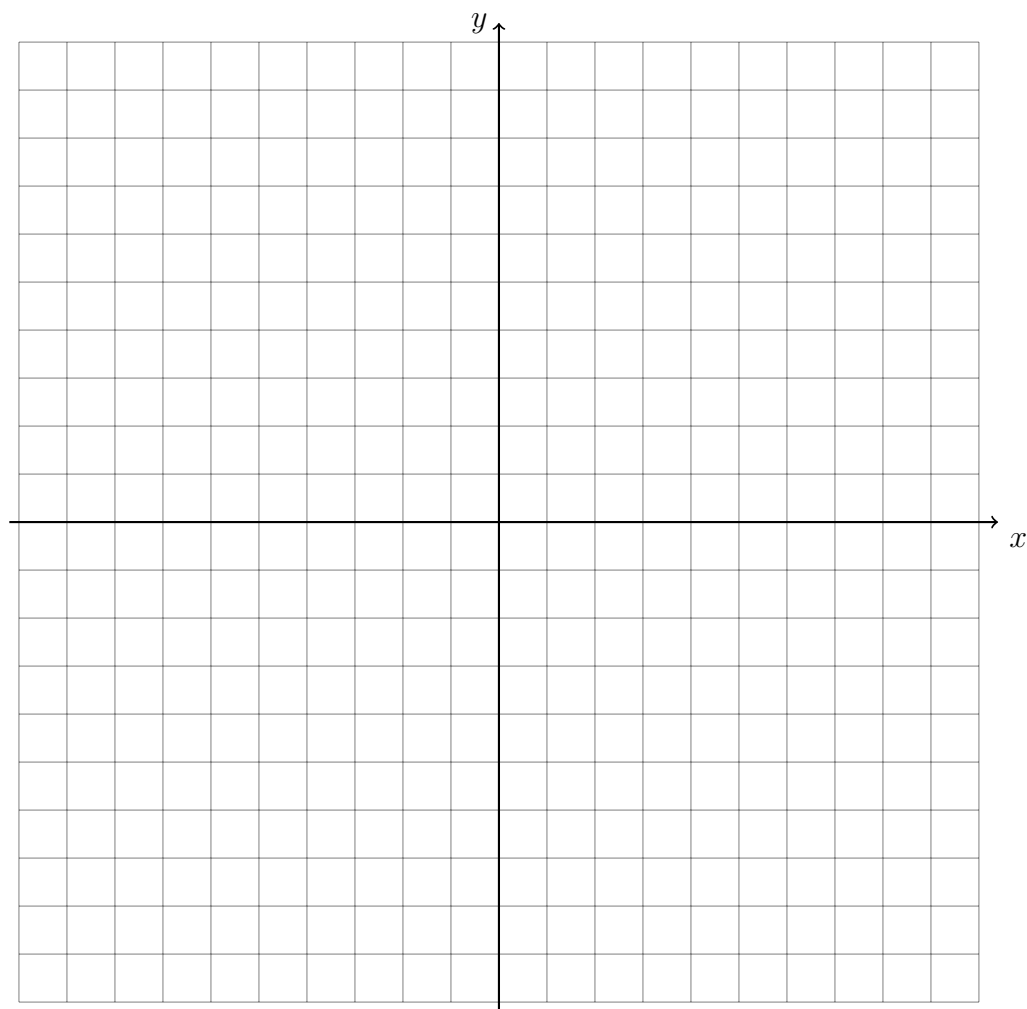
$$x + y = 1$$



2. Solve for  $y$ , then graph the two inequalities. Mark the solution set with a capital “S.”

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

$$2x + y < -5$$



Determine and state whether the point  $(-5, 5)$  is a solution of the system of inequalities. Justify your answer.



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### Homework: Graphing systems of equations

1. Graph the two lines after filling in the values in the blanks.

$$y > x - 3$$

(a)  $y$ -intercept  $b =$  \_\_\_\_\_

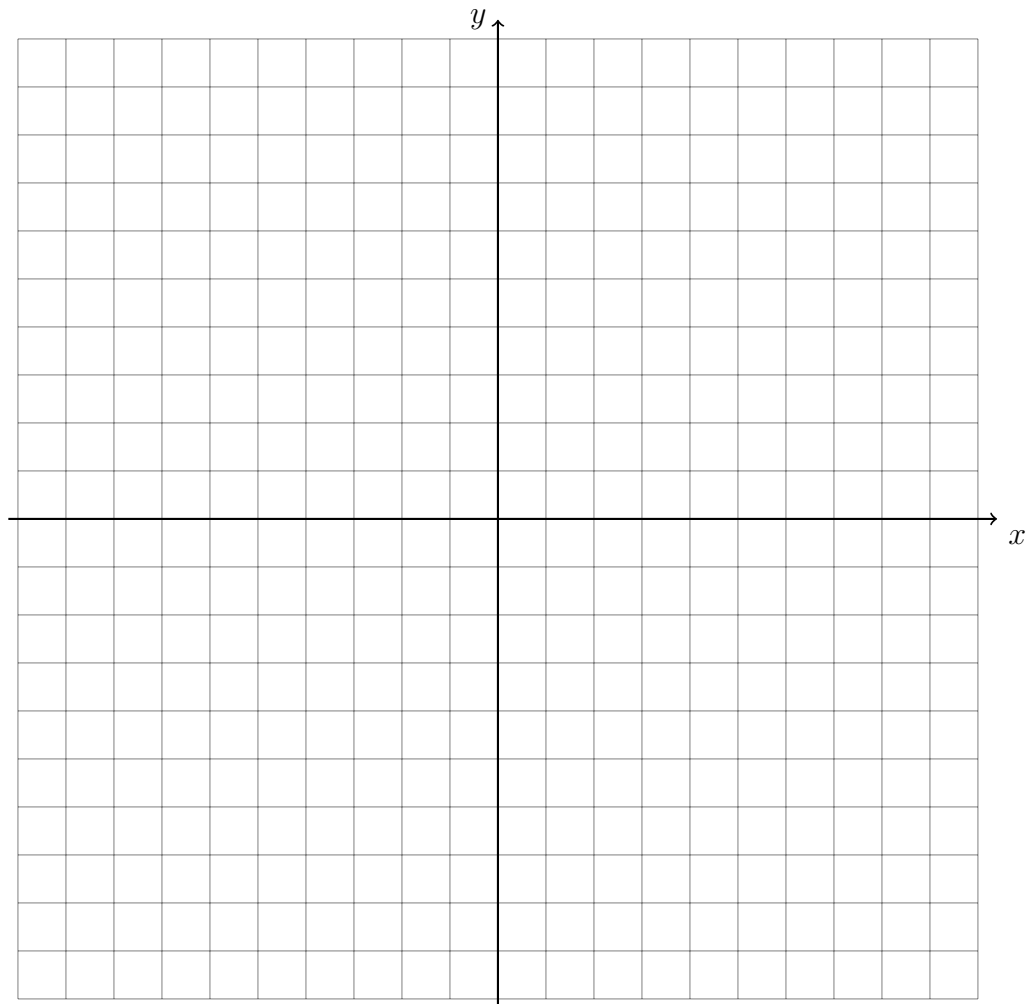
(b) Slope  $m =$  \_\_\_\_\_

$$y \leq -\frac{1}{2}x + 6$$

(a)  $y$ -intercept  $b =$  \_\_\_\_\_

(b) Slope  $m =$  \_\_\_\_\_

Label both lines and the solution to the system with a capital "S". (3 points) Use pencil for graph (1 point)



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**Classwork: Happy New Year!**  
**Due at the end of the period.**

Fill in the values in the blanks and circling the correct types.

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

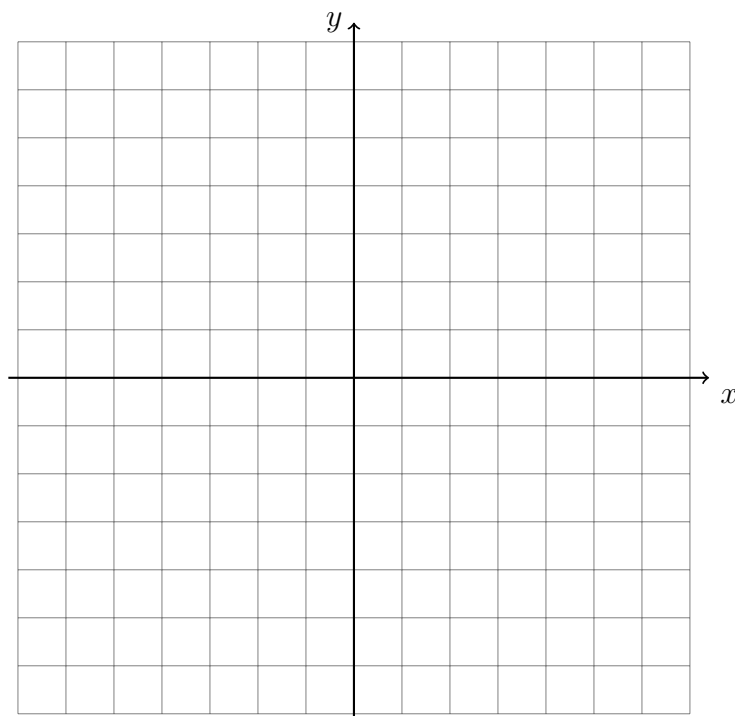
$y$ -intercept  $b =$  \_\_\_\_\_

Line:          Solid (=)      Dashed ( $\neq$ )

Slope           $m =$  \_\_\_\_\_

Shading:      Above ( $y >$ )      Below ( $y <$ )

Graph the inequality (use a pencil and straight edge - 1 point)



2. Solve for  $y$ , then complete.  $x + 2y > 3$

$y$ -intercept  $b =$  \_\_\_\_\_

Line:          Solid (=)      Dashed ( $\neq$ )

Slope           $m =$  \_\_\_\_\_

Shading:      Above ( $y >$ )      Below ( $y <$ )

3. Graph the two lines after filling in the values in the blanks.

$$y = 2x - 3$$

(a)  $y$ -intercept  $b =$  \_\_\_\_\_

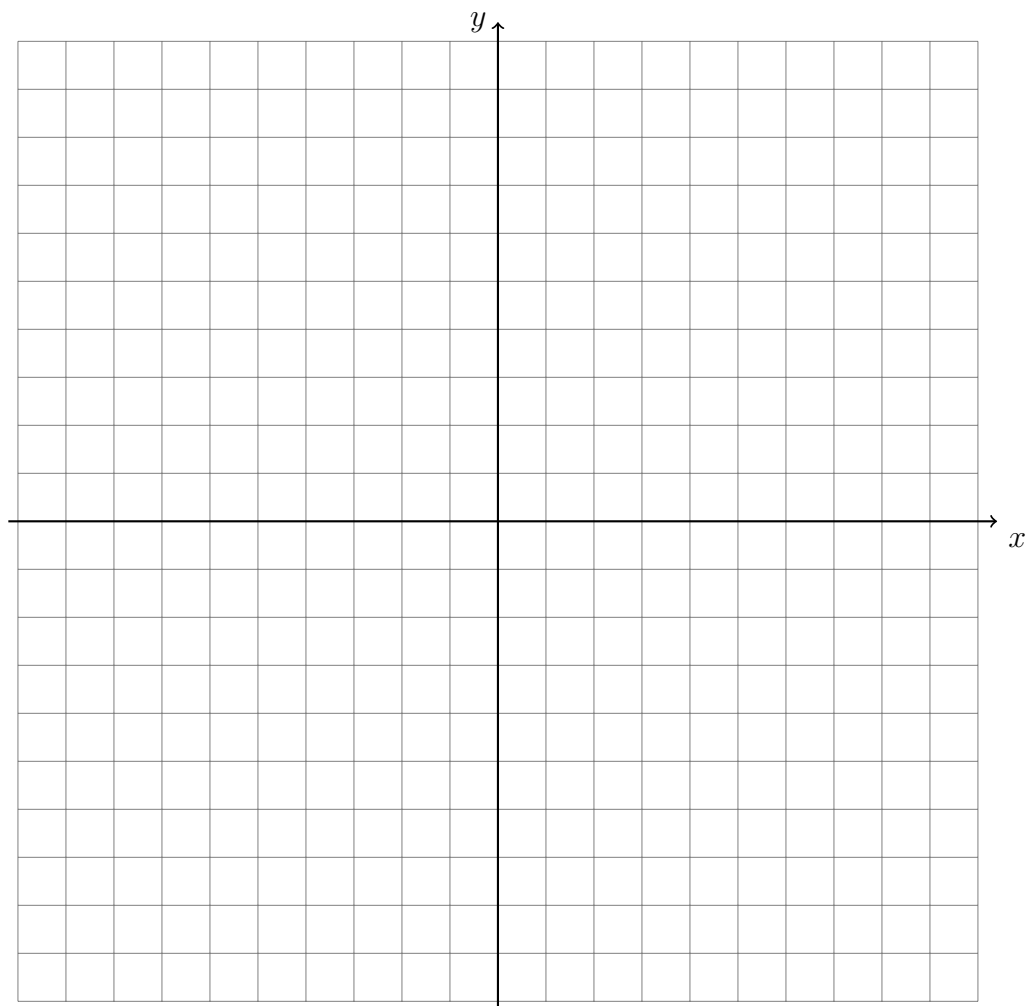
(b) Slope  $m =$  \_\_\_\_\_

$$y = -\frac{1}{3}x + 4$$

(a)  $y$ -intercept  $b =$  \_\_\_\_\_

(b) Slope  $m =$  \_\_\_\_\_

Label both lines and the solution to the system, the intersection, as a coordinate pair.  
(3 points) Use pencil for graph (1 point)



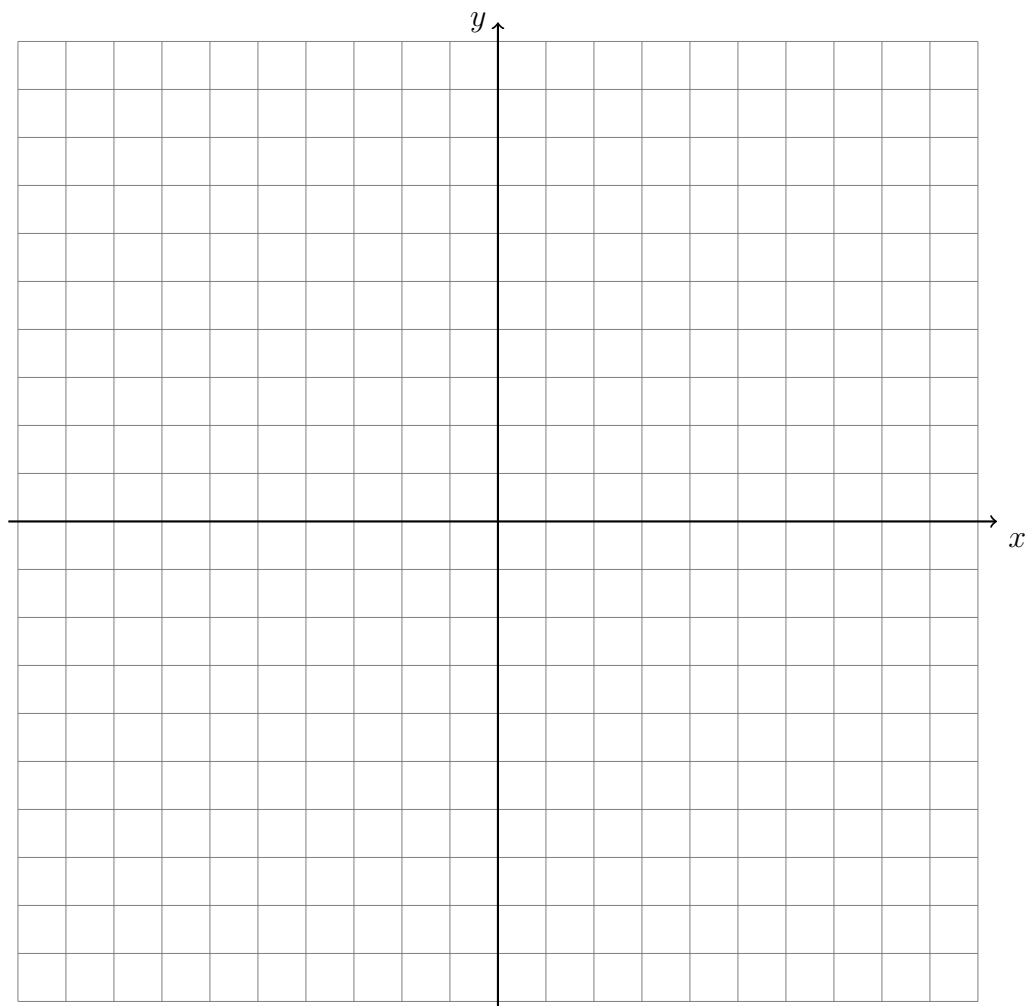
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### Graphing quadratic functions

4. Given the quadratic function  $f(x) = x^2 - 3$ , find the row differences.

$x$	$f(x)$
-3	6
-2	1
-1	-2
0	-3
1	-2
2	1
3	6

Graph the function as a line over the domain  $-3 \leq x \leq 3$ .



5. Graph the two lines after filling in the values in the blanks.

$$y = x - 3$$

(a)  $y$ -intercept  $b =$  \_\_\_\_\_

(b) Slope  $m =$  \_\_\_\_\_

$$x + y = 1$$

(a)  $y$ -intercept  $b =$  \_\_\_\_\_

(b) Slope  $m =$  \_\_\_\_\_

Label both lines and the solution to the system, the intersection, as a coordinate pair.  
(3 points) Use pencil for graph (1 point)

