Classwork: Graphing inequalities

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

1. Fill in or circle the appropriate values, then graph the two inequalities.

   $y > \frac{2}{3}x + 5$ $y \geq -1x$

   (a) y-intercept $b =$ _____   (a) y-intercept $b =$ _____

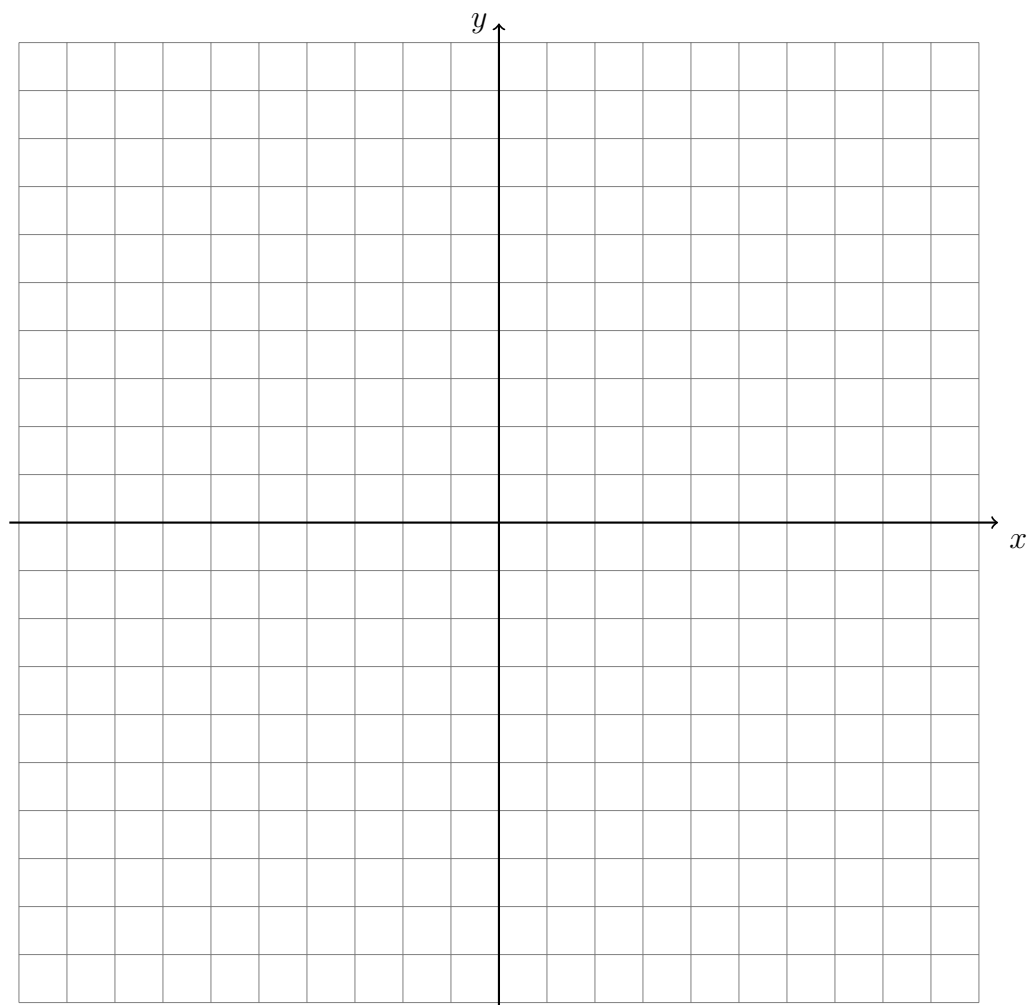   (b) Slope $m =$ _____   (b) Slope $m =$ _____

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

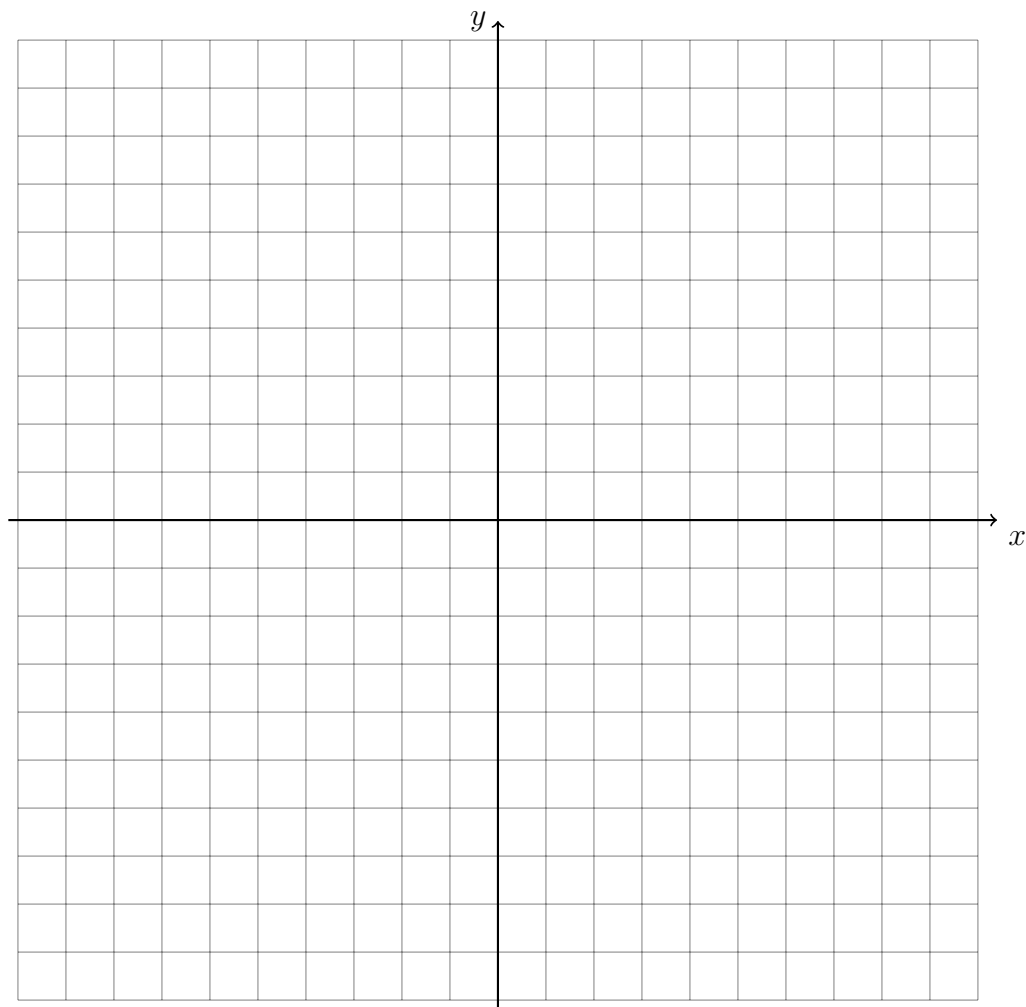   (d) Shading: Above ($y >$) Below ($y <$)   (d) Shading: Above ($y >$) Below ($y <$)

   Mark the solution set with a capital "S".

2. Solve for y, then graph the two inequalities.

$x + 2y \leq 12$ $4x - 2y < -2$

Mark each ordered pair on the graph, then determine whether it is a solution of the system of inequalities. (circle Yes or no)

(a) $(8, 2)$ Yes   No

(b) $(-3, 6)$ Yes   No

(c) $(1, 3)$ Yes   No

(d) $(-2, -5)$ Yes   No

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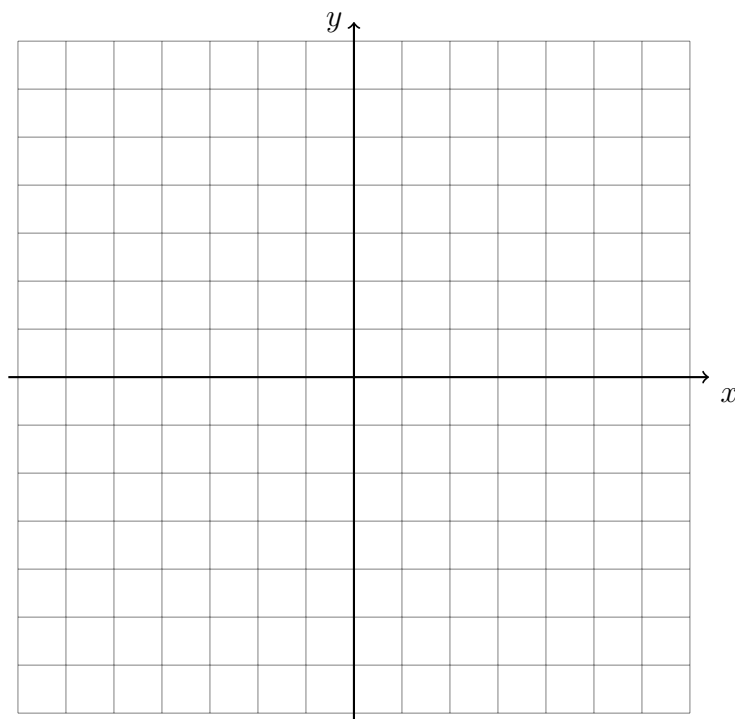
1. $\frac{3}{2}x - 2y \le +2$

      y-intercept $b =$ _____   Line: Solid $(=)$ Dashed $(\ne)$

      Slope $m =$ _____   Shading: Above $(y >)$ Below $(y <)$

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

      y-intercept $b =$ _____   Line: Solid $(=)$ Dashed $(\ne)$

      Slope $m =$ _____   Shading: Above $(y >)$ Below $(y <)$

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

$y \geq -3x + 1$
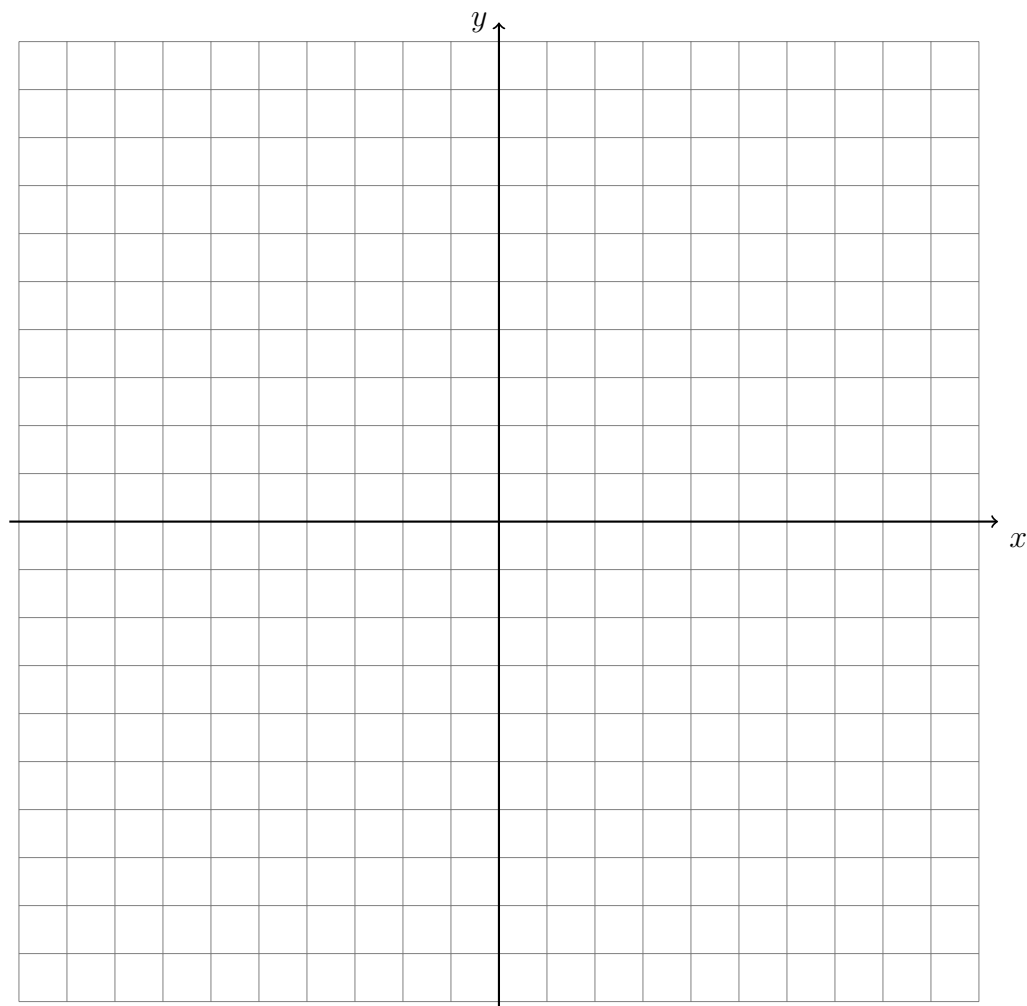
   (a) y-intercept $b = $ _____

   (b) Slope $m = $ _____

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

   (a) y-intercept $b = $ _____

   (b) Slope $m = $ _____

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

(b)

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

Change in y = _____   Change in y = _____

Change in x = _____   Change in x = _____

Slope m = _____   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

(b)

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

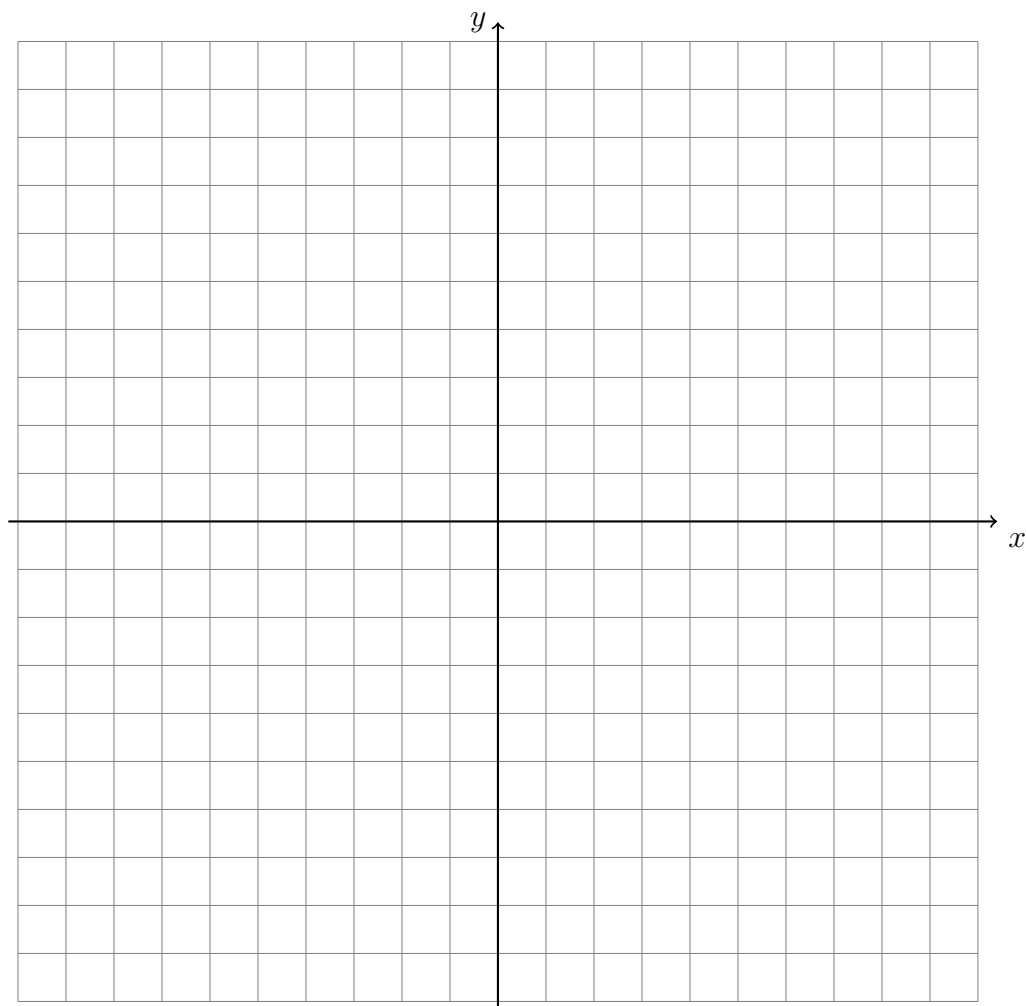Slope m = _____   Slope m = _____

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

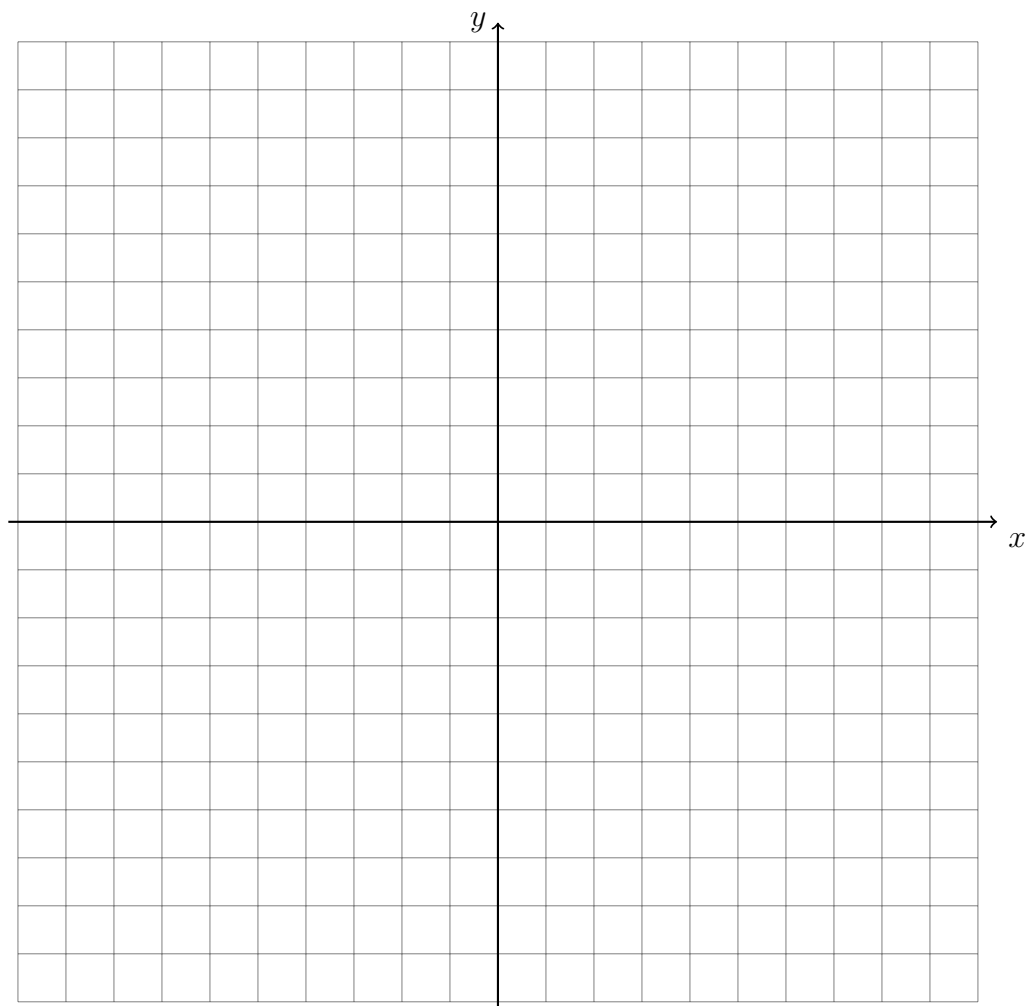Graph the function as a line over the domain $-3 \leq x \leq 3$.

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)
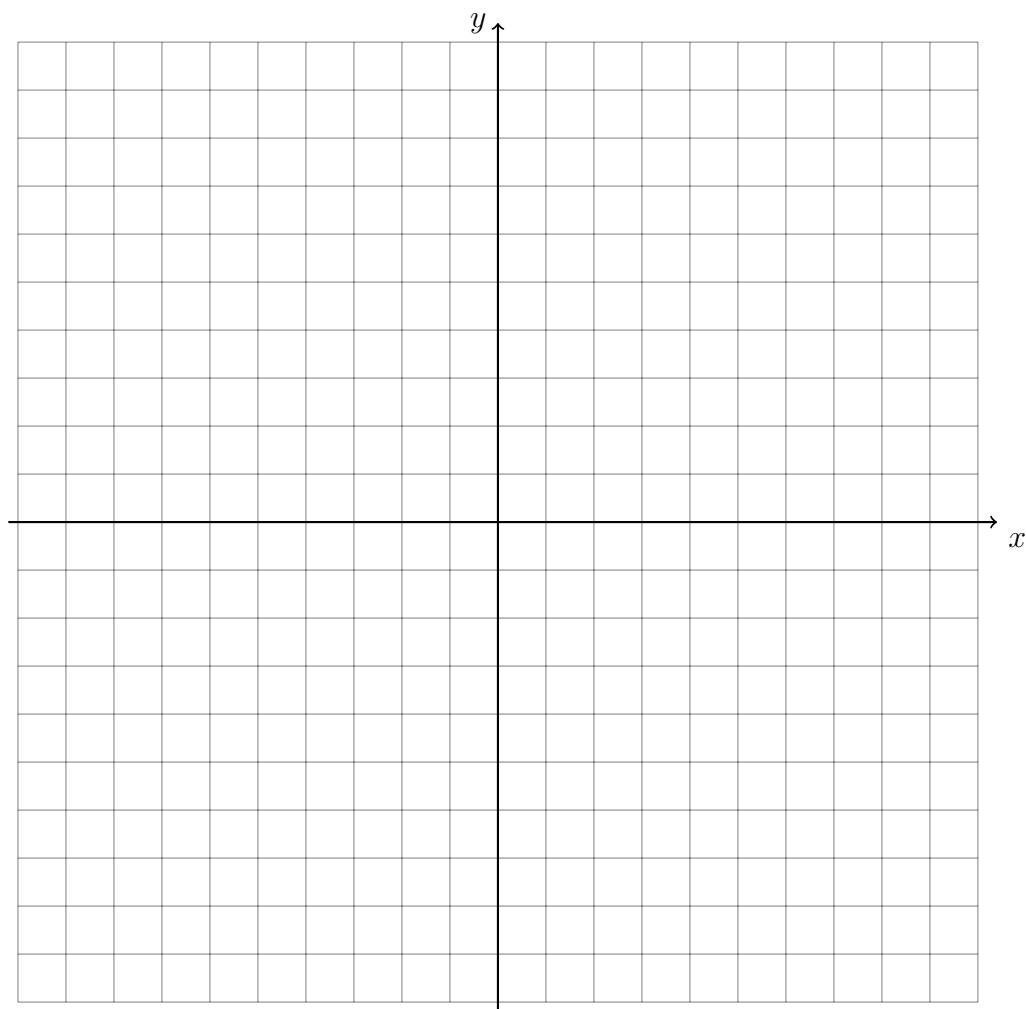
$$y = 2x + 4 \qquad\qquad\qquad x + y = 1$$

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

$$y \geq \tfrac{2}{3}x + 3 \hspace{4cm} 2x + y < -5$$

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

Homework: Graphing systems of equations

1. Graph the two lines after filling in the values in the blanks.
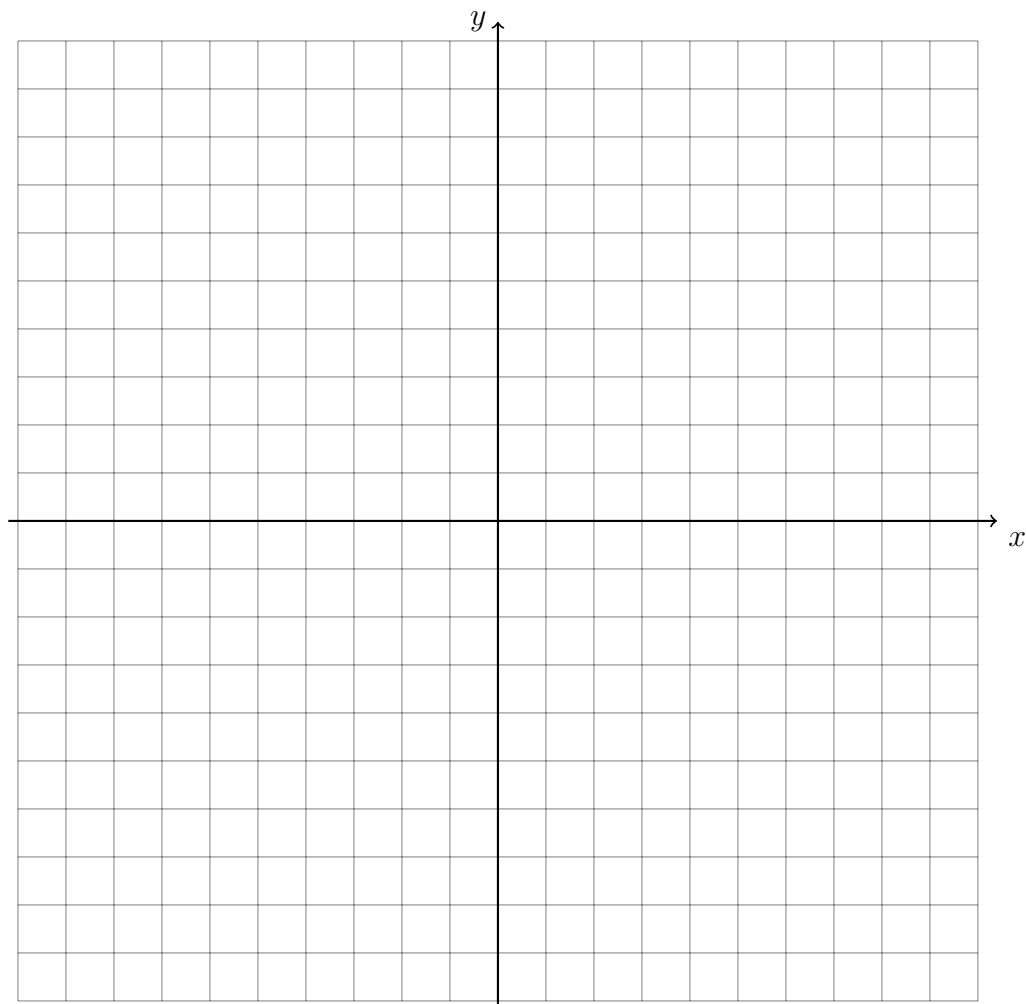
$y > x - 3$ $y \leq -\frac{1}{2}x + 6$

  (a) y-intercept $b = $ _____   (a) y-intercept $b = $ _____

  (b) Slope $m = $ _____   (b) Slope $m = $ _____

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

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

Fill in the values in the blanks and circling the correct types.
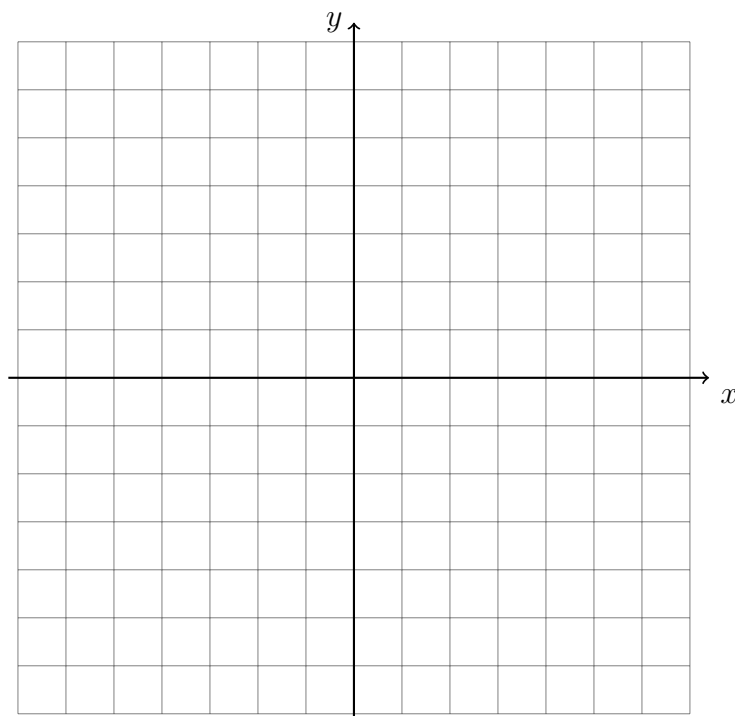
1. $y \leq \frac{2}{3}x + 1$

   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.

$y = 2x - 3$ $y = -\frac{1}{3}x + 4$
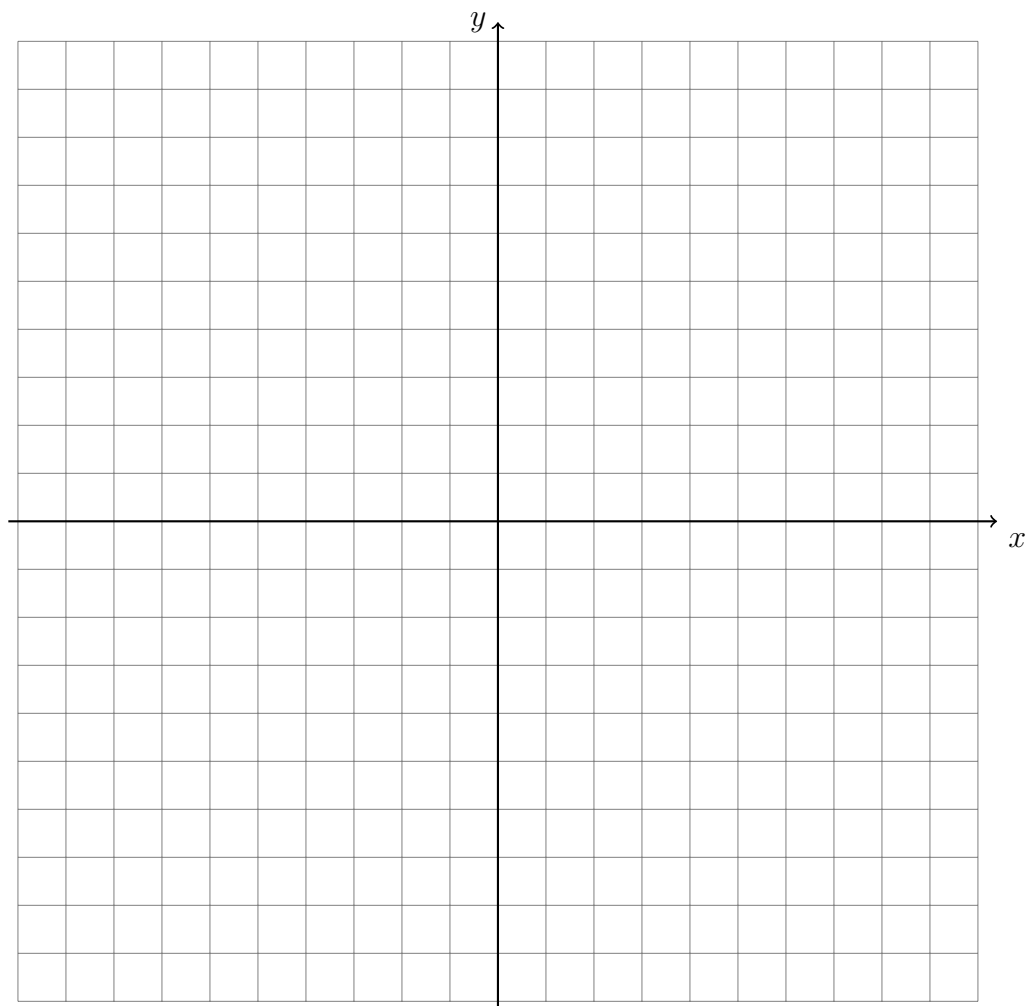
   (a) y-intercept $b =$ _____   (a) y-intercept $b =$ _____

   (b) Slope $m =$ _____   (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)
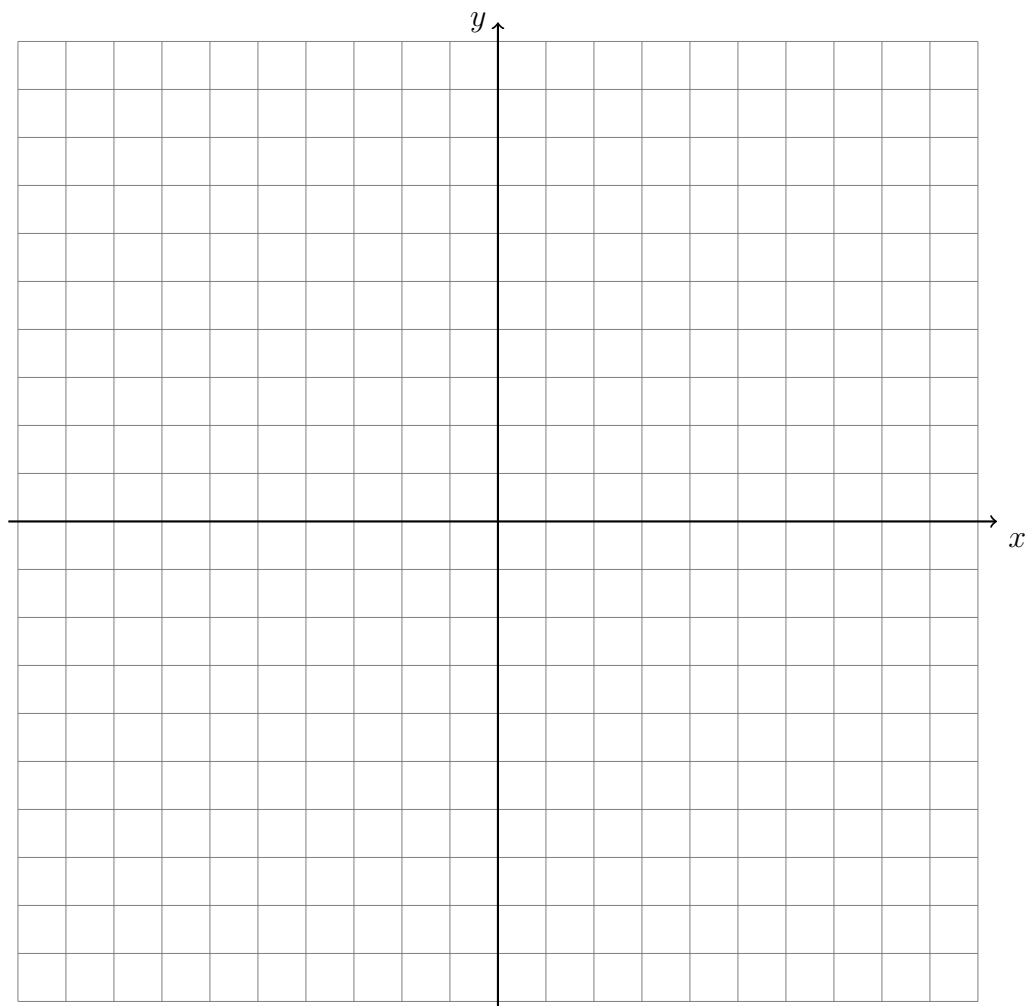
Graphing quadratic functions

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.

$y = x - 3$ $x + y = 1$

  (a) y-intercept $b = $ _____   (a) y-intercept $b = $ _____

  (b) Slope $m = $ _____   (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)