1 Systems of equations

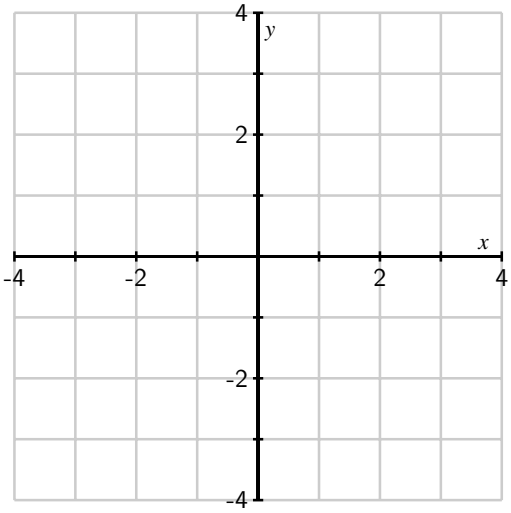
1.1 What can we expect

Activity 1.1.1 In this activity, we consider sets of linear equations having just two unknowns. In this case, we can graph the solutions sets for the equations, which allows us to visualize different types of behavior.

a. On the grid below, graph the lines

$$y = x + 1$$
$$y = 2x - 1.$$

At what point or points (x, y), do the lines intersect? How many points (x, y) satisfy both equations?



b. On the grid below, graph the lines

$$y = x + 1$$
$$y = x - 1.$$

At what point or points (x, y), do the lines intersect? How many points (x, y) satisfy both equations?

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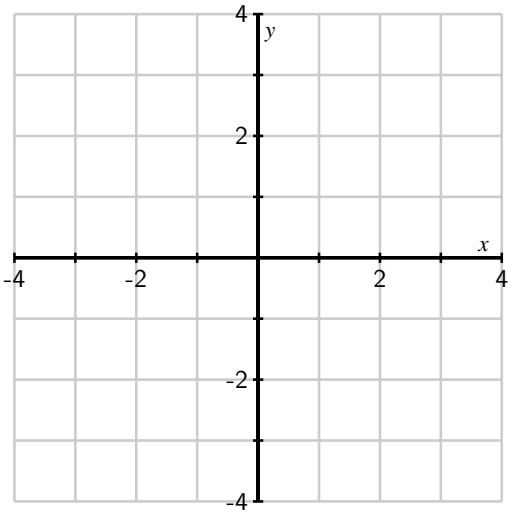
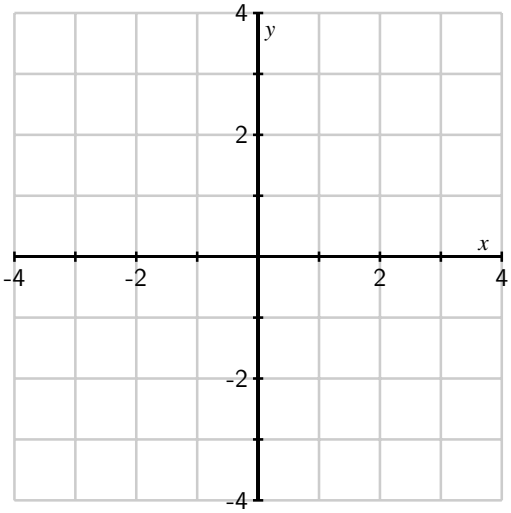


c. On the grid below, graph the line

$$y = x + 1.$$

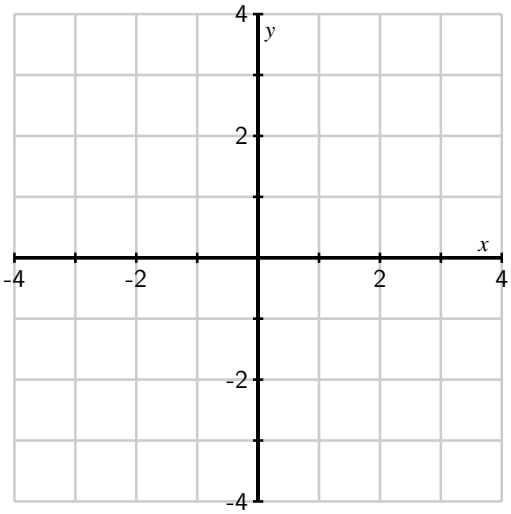
How many points (x, y) satisfy this equation?



d. On the grid below, graph the lines

$$y = x + 1$$
$$y = 2x - 1$$
$$y = -x.$$

At what point or points (x, y), do the lines intersect? How many points (x, y) satisfy all three equations?


4
y
2
x
-4
-2
2
4
-2
-4