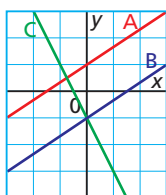


Exercises

A

4. a) Without graphing, determine the slope of the graph of each equation.
- $-x + y = 5$
 - $-x - y = 10$
 - $-2x + 2y = 10$
 - $x + y = 5$
- b) Which lines in part a are parallel?
c) Which lines in part a intersect?
5. The graphs of three lines are shown below.



- Identify two lines that form a linear system with exactly one solution.
 - Identify two lines that form a linear system with no solution.
6. Use these 6 equations:
- $$4x + 2y = 20 \quad x - 3y = 12$$
- $$5x - 15y = -60 \quad 2x + y = 10$$
- $$6x + 3y = 5 \quad 2x - 6y = 24$$
- Write a linear system that has:
- no solution
 - exactly one solution
 - infinite solutions

B

7. Determine the number of solutions of each linear system.
- $x + 2y = 6$
 $x + y = -2$
 - $3x + 5y = 9$
 $6x + 10y = 18$
 - $2x - 5y = 30$
 $4x - 10y = 15$
 - $\frac{x}{2} + \frac{y}{3} = \frac{1}{2}$
 $\frac{x}{2} + \frac{y}{3} = \frac{1}{4}$

8. The first equation of a linear system is given. Write a second equation to form a linear system that satisfies each condition. Explain your reasoning.
- The second line intersects the line $-2x + y = 1$ in the first quadrant.
 - The second line does not intersect the line $-2x + y = 1$.
 - The second line coincides with the line $-2x + y = 1$.
9. The table below shows some properties of the graphs of 3 linear equations. For the linear system formed by each pair of equations, how many solutions are there? Explain your reasoning.
- A and B
 - A and C
 - B and C

| Equation | Slope | y-intercept |
|----------|-------|-------------|
| A | -0.5 | 4 |
| B | -0.5 | 2 |
| C | 0.5 | 4 |

10. Marc wrote the two equations in a linear system in slope-intercept form. He noticed that the signs of the two slopes were different. How many solutions will this linear system have? Explain.
11. Two lines in a linear system have the same slope. What information do you need to determine whether the linear system has no solution or infinite solutions?
12. Use the equation $3x - 4y = 12$ as an equation in three different linear systems. Write a second equation so that each system has a different number of solutions. Explain what you did for each system.