

Lesson 5-1: Estimate Solutions by Inspection

1. Sample answer: If the slopes of the lines in the system are different, the system will have one solution. If the slopes of the lines in the system are the same, but the y-intercepts are different, the system will have no solution. If the slopes of the lines in the system are the same, and the y-intercepts are the same, the system will have infinitely many solutions.
2. No; Sample answer: If the two lines have the same y-intercepts, but different slopes, the system will only have one solution.
3. Sample answer: Rewrite the equations in slope-intercept form, and compare the slopes and y-intercepts. If the slopes and y-intercepts are the same, there are infinitely many solutions. If the slopes are the same and the y-intercepts differ, there is no solution. If the slopes differ, there is one solution.
4. Yes; Sample answer:
Kyle's bag weighs $y = 3x + 5$
Lara's bag weighs $y = 5x + 3$
Because each equation has a different slope, there is one possible solution, (1,8), in which Kyle and Lara have the same number of green marbles and the same total bag weight.
5. None; Sample answer: Both equations have a slope of $\frac{1}{2}$, but they have different y-intercepts. They are parallel lines that never intersect.
6. Infinitely many solutions; Sample answer: The equations have the same slope, -2, and the same y-intercept, 4, so there are infinitely many solutions.
7. equal to
equal
infinitely many
8. One solution
9. Infinitely many solutions
10. There is no solution.
11. One solution
12. Yes; Sample answer: Lines with the same slope but different y-intercepts are always parallel.
13. Sample answer: Joe rents movies online for a \$10 fee plus \$2 per movie. Jim rents movies online for a \$15 fee plus \$1 per movie. There is one solution to this equation, (5, 20). When they each rent 5 movies, they will each pay \$20.
14. Infinitely many solutions; Sample answer: $12x + 51y = 156$ and $4x + 17y = 52$
15. The y-intercept represents the height of each flower when planted. Yes; Sample answer: The flowers are the same height when they are planted.
16. No solution
17. When $T = -Q$ and $R = 1$

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18. The system has infinitely many solutions.

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