ALBERT

Name _____ Date _____

Solving Systems of Equations Worksheet

Algebra 1 · Common Core HSA-REI.C.6

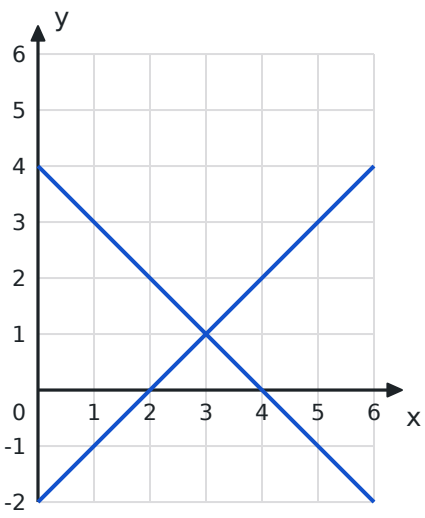
> Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

Practice

Builds the skill step by step.

1. Solve the system $y = 2x + 1$ and $y = -x + 7$.

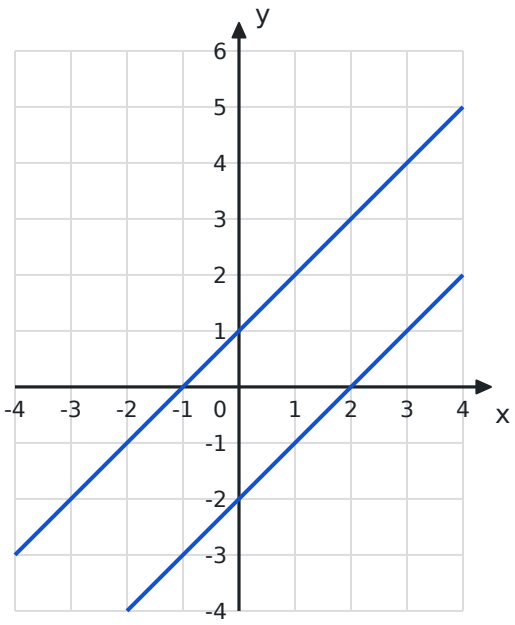
2. The graph shows two lines. What is the solution of the system they represent?



3. Solve the system $x + y = 9$ and $y = 2x$.

4. Solve the system $y = 4x - 3$ and $y = 2x + 5$.

5. The graph shows two lines. How many solutions does the system have?



A. Exactly one

B. Exactly two

C. None

D. Infinitely many

6. Solve the system $x = 3y$ and $x + y = 12$.

7. Solve the system $2x + y = 7$ and $x - y = -1$.

8. Is (1, 4) a solution of the system $y = 3x + 1$ and $y = -x + 5$?

   A. Yes, it makes both equations true.

   B. No, it only works in the first equation.

   C. No, it only works in the second equation.

   D. No, it works in neither equation.

9. Solve the system $y = -2x + 8$ and $y = 2$.

10. Two numbers add to 20, and their difference is 6. What is the larger number?

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On Level

Grade-level practice.

1. Solve the system $3x + 2y = 16$ and $x - y = 2$.

2. Solve the system $y = x + 1$ and $y = -x + 4$ exactly.

3. Plan A costs 25 dollars plus 10 dollars a month. Plan B costs 55 dollars plus 4 dollars a month. After how many months do the plans cost the same?

4. How many solutions does the system $2x - 3y = 6$ and $4x - 6y = 12$ have?

   A. None

   B. Infinitely many

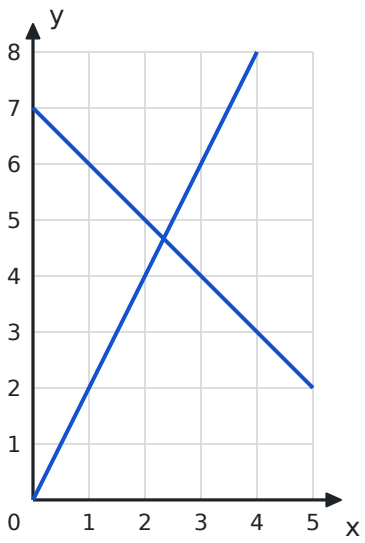
   C. Exactly one

   D. Exactly two

5. Solve the system $5x - 2y = 11$ and $2x + 3y = 12$.

6. Solve the system $y = 0.5x + 3$ and $y = -x + 9$.

7. The graph shows the lines $y = 2x$ and $y = -x + 7$. Which is the best estimate of the solution?



A. (2, 4)

B. (2.5, 4)

C. (3, 6)

D. (2.3, 4.7)

8. Solve the system $y = 2x$ and $y = -x + 7$ exactly.

9. A farm has 40 animals, all chickens and goats, with 100 legs in all. How many goats are there?

10. Solve the system $x = 2y - 1$ and $3x - 4y = 5$.

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Challenge

Multi-step and word problems that stretch it.

1. A chemist mixes a 30% solution and a 60% solution to make 12 liters of a 50% solution. How many liters of the 30% solution does she use?

2. Solve the system $\frac{2}{3}x + \frac{1}{2}y = 7$ and $x - y = 0$.

3. Solve the system $y = 2x + 6$ and $y = -3x + 1$.

4. For which value of k does the system $y = kx + 2$ and $y = 3x - 5$ have no solution?

   A. -5

   B. -3

   C. 2

   D. 3

5. A boat goes 36 miles downstream in 2 hours and 24 miles upstream in 2 hours. What is the boat's speed in still water, in miles per hour?

6. Lia solves $y = 2x - 1$ and $3x + y = 9$. She writes $3x + 2x - 1 = 9$, then $5x = 8$. What is her error?

   A. She should have substituted for x instead of y.

   B. She subtracted 1 from 9 instead of adding 1; it should be $5x = 10$.

   C. $3x + 2x$ should be $6x$.

   D. There is no error.

7. Solve the system $y = 2x - 1$ and $3x + y = 9$.

8. Rental company A charges 40 dollars plus 0.25 dollars per mile. Company B charges 25 dollars plus 0.40 dollars per mile. What is the cost, in dollars, at the mileage where they are equal?

9. Solve the system $x + 2y = 4$ and $3x - y = 5$.

10. A graph seems to show $y = 1.4x + 0.2$ and $y = -x + 5$ crossing at (2, 3). Is (2, 3) the exact solution?

    A. No, it only works in the first equation.

    B. No, graphs only give estimates.

    C. Yes, because it makes both equations true.

    D. No, it only works in the second equation.