Systems of Equations and Inequalities

Shared solutions, substitution, elimination, and intersection meaning.

Name _____ Date _____

32 main 2-up grid 3 pages

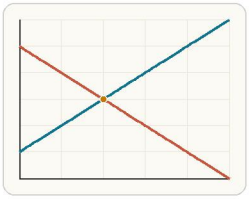
Completion Reward

Shown here as a small pack artifact, not a preview destination.

1. What does it mean if a system of two linear equations has no solution?

A. The lines intersect at the origin.
B. The lines never intersect.
C. The equations are identical.
D. Each equation has two answers by itself.

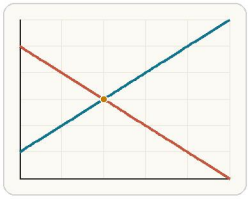
2. What does a solution to a system of equations mean?



A solution to a system is an ordered pair that makes both equations true, so it must lie on both graphs at once.

A. Any point on either graph
B. A point that makes both equations true
C. The x-intercept of one line
D. The slope of the steeper line

3. Does (2, 3) solve the system y = x + 1 and x + y = 5?



Check the point against each graph or equation because one line alone is not enough for a system solution.

A. No
B. Only the first equation
C. Cannot tell
D. Yes

4. Which point satisfies both x >= 1 and y < 2?

A. (0, 1)
B. (1, 1)
C. (2, 3)
D. (1, 2)

5. Solve the system x = 5 and x + y = 9. Answer as an ordered pair.

6. In a system of inequalities, what is the feasible region?

A. Any point on either boundary line
B. Only the origin
C. The set of points that satisfy all inequalities at the same time
D. The steepest line in the system

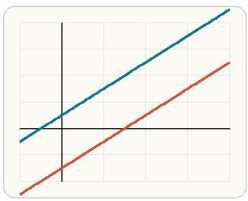
7. What kind of system is 2x + y = 5 and 4x + 2y = 10?

A. No solution
B. Infinitely many solutions
C. Exactly one solution
D. Not a system

8. Which system has infinitely many solutions?

A. y = 2x + 3 and 2y = 4x + 6
B. y = 2x + 3 and y = 2x - 1
C. x + y = 5 and x - y = 1
D. y = x and y = -x

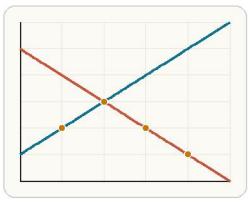
9. What does it mean if two lines in a system never intersect?



If the lines never intersect, there is no ordered pair that satisfies both equations at once.

A. The system has infinitely many solutions
B. The system has exactly two solutions
C. The graph is not linear
D. The system has no solution

10. Which labeled point is the solution to the graphed system?



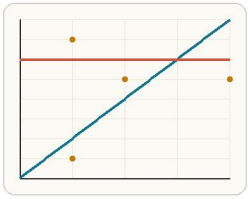
On a graph, the system solution is the point where the two lines meet.

A. A
B. C
C. B
D. D

11. Which point satisfies both inequalities y > x and y < 4?

A. (3, 3)
B. (2, 3)
C. (4, 2)
D. (1, 5)

12. Which labeled point satisfies both inequalities?



The feasible points are on or above y = 2x and on or below y = 6.

A. A
B. C
C. D
D. B

13. For the system y = x + 1 and 2x + y = 11, what is the best next step?

A. Add the equations together immediately.
B. Multiply both equations by -1.
C. Subtract x from both equations.
D. Substitute x + 1 for y in 2x + y = 11.

14. What is the best next step to use elimination on 2x + y = 7 and 3x - y = 8?

A. Subtract the first equation from the second to eliminate x
B. Multiply both equations by x
C. Add the equations to eliminate y
D. Graph the system because elimination cannot be used

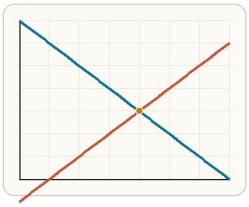
15. A student uses y = x + 2 in the system y = x + 2 and 3x + y = 14, but writes 3x + x = 14. What is wrong?

A. They should have multiplied x by y instead.
B. They forgot to substitute the entire expression x + 2 for y.
C. Substitution never works for linear systems.
D. They should have deleted the 3x term.

16. A student subtracts x + y = 8 from x - y = 2 and says the y-terms cancel. What is wrong?

A. Subtracting gives -2y, not 0, because -y - y = -2y.
B. The x-terms should never cancel.
C. Systems cannot be solved by subtraction.
D. The answer should always be y = 0.

17. A student adds x + y = 7 and x - y = 1 and gets y = 8. What is wrong?



The y-terms cancel because they are opposites.

A. The y terms should cancel, leaving 2x = 8.
B. The x terms should cancel, leaving 2y = 8.
C. You cannot add equations.
D. There is no mistake.

18. Solve the system x + y = 20 and x - y = 4.

A. (12, 8)
B. (8, 12)
C. (10, 10)
D. (24, 4)

19. Solve the system 2x + y = 7 and x + y = 5. Answer as an ordered pair.

20. Solve the system y = 3x - 2 and y = x + 4. Answer as an ordered pair.

21. Solve the system x + y = 9 and x - y = 1. Answer as an ordered pair.

22. Solve the system 2x + y = 11 and x - y = 1. Answer as an ordered pair.

23. Solve the system x + 2y = 8 and x - y = 2. Answer as an ordered pair.

24. Solve the system y = x + 2 and y = 5. Answer as an ordered pair.

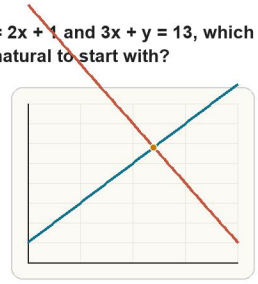
25. Which method is most natural for the system y = 3x - 2 and 2x + y = 9?

A. Elimination only
B. Graphing only
C. Substitution
D. No method works

26. For the system y = 4x - 1 and 2x + y = 14, which method is more natural to start with?

A. Elimination by adding immediately
B. Substitution
C. Graphing only
D. Factoring

27. For y = 2x + 1 and 3x + y = 13, which method is more natural to start with?



Substitution is natural when one line is already isolated.

A. Elimination, because no variable is isolated
B. Graphing is the only exact method
C. No method works here
D. Substitution, because y is already isolated

28. What is the best next step for eliminating a variable in 3x + 2y = 12 and 3x - y = 3?

A. Divide the first equation by 3.
B. Add the equations immediately.
C. Switch x and y in the second equation.
D. Multiply the second equation by 2.

29. Solve the system y = 2x - 1 and x + y = 11.

A. (4, 7)
B. (3, 5)
C. (2, 3)
D. (5, 9)

30. Solve the system x + y = 7 and x - y = 1. Answer as an ordered pair.

31. **A club sold 14 tickets total. Adult tickets cost $8 and student tickets cost $5 for a total of $91. How many adult tickets were sold? Answer with a number.**

32. **Adult tickets cost $10 and student tickets cost $6. A group buys 12 tickets for $96 total. Let a be adult tickets and s be student tickets. Write the system as two equations.**