

Solving Linear Equations with Infinite and No Solution Practice

Solve the following equations. Some equations will have a single answer, others will have no solution, and still others will have infinite solutions.

1. $2x + 2x + 2 = 4x + 2$

2. $3(x - 1) = 2x + 9$

3. $2x + 8 = 2(x + 4)$

4. $2x - x + 7 = x + 3 + 4$

5. $-2(x + 1) = -2x + 5$

6. $4x + 2x + 2 = 3x - 7$

7. $2(x + 2) + 3x = 2(x + 1) + 1$

8. $4(x - 1) = \frac{1}{2}(x - 8)$

9. $x + 2x + 7 = 3x - 7$

10. $3x - x + 4 = 4(2x - 1)$

11. $4(2x + 1) = 5x + 3x + 9$

12. $10 + x = 5(\frac{1}{5}x + 2)$

13. $8(x + 2) = 2x + 16$

14. $3 + \frac{3}{2}x + 4 = 4x - \frac{5}{2}x$

15. $\frac{3}{2}(2x + 6) = 3x + 9$

16. $\frac{1}{2}(2 - 4x) + 2x = 13$

17. $12 + 2x - x = 9x + 6$

18. $4x + 1 = 2(2x + 3)$

19. $4(x + 3) - 4 = 8(\frac{1}{2}x + 1)$

20. $x + 5x + 4 = 3(2x - 1)$

21. $5(x + 2) - 3x = 2(x + 5)$

22. $3x + 1 = 3(x - 1) + 4$

23. $4x + 2x - 5 = 7x - 1$

24. $-2(x + 1) = 2(x - 1)$

25. $2(x + 5) = 2x + 5$

26. $2(3x + 3) = 3(2x + 2)$

27. $2x + 1 - 4 = -2x - 3$

28. $4(x + 1) = 4(2 - x)$

29. $3x + 7x + 1 = 2(5x + 1)$

30. $6(x + 1) + 5 = 13 - 2 + 6x$

8.EE.7

Create multi-step equations with the given number of solutions.

31. A single solution

32. Infinite solutions

33. No solution

34. Infinite solutions

35. No solution

36. A single solution

37. No solution

38. A single solution

39. Infinite solutions

40. A single solution

41. Infinite solutions

42. No solution

8.EE.7

Solving Linear Equations with Infinite and No Solution Practice Answers

Solve the following equations. Some equations will have a single answer, others will have no solution, and still others will have infinite solutions.

1. $2x + 2x + 2 = 4x + 2$
 ∞

2. $3(x - 1) = 2x + 9$
 $x = 12$

3. $2x + 8 = 2(x + 4)$
 ∞

4. $2x - x + 7 = x + 3 + 4$
 ∞

5. $-2(x + 1) = -2x + 5$
 \emptyset

6. $4x + 2x + 2 = 3x - 7$
 $x = -3$

7. $2(x + 2) + 3x = 2(x + 1) + 1$
 $x = -\frac{1}{3}$

8. $4(x - 1) = \frac{1}{2}(x - 8)$
 $x = 0$

9. $x + 2x + 7 = 3x - 7$
 \emptyset

10. $3x - x + 4 = 4(2x - 1)$
 $x = \frac{4}{3}$

11. $4(2x + 1) = 5x + 3x + 9$
 \emptyset

12. $10 + x = 5(\frac{1}{5}x + 2)$
 ∞

13. $8(x + 2) = 2x + 16$
 $x = 0$

14. $3 + \frac{3}{2}x + 4 = 4x - \frac{5}{2}x$
 \emptyset

15. $\frac{3}{2}(2x + 6) = 3x + 9$
 ∞

16. $\frac{1}{2}(2 - 4x) + 2x = 13$
 \emptyset

17. $12 + 2x - x = 9x + 6$
 $x = \frac{3}{4}$

18. $4x + 1 = 2(2x + 3)$
 \emptyset

19. $4(x + 3) - 4 = 8(\frac{1}{2}x + 1)$
 ∞

20. $x + 5x + 4 = 3(2x - 1)$
 \emptyset

21. $5(x + 2) - 3x = 2(x + 5)$
 ∞

22. $3x + 1 = 3(x - 1) + 4$
 ∞

23. $4x + 2x - 5 = 7x - 1$
 $x = -4$

24. $-2(x + 1) = 2(x - 1)$
 $x = 0$

25. $2(x + 5) = 2x + 5$
 \emptyset

26. $2(3x + 3) = 3(2x + 2)$
 ∞

27. $2x + 1 - 4 = -2x - 3$
 $x = 0$

28. $4(x + 1) = 4(2 - x)$
 $x = \frac{1}{2}$

29. $3x + 7x + 1 = 2(5x + 1)$
 \emptyset

30. $6(x + 1) + 5 = 13 - 2 + 6x$
 ∞

8.EE.7

Create multi-step equations with the given number of solutions.

31. A single solution

32. Infinite solutions

33. No solution

All answers will vary

34. Infinite solutions

35. No solution

36. A single solution

37. No solution

38. A single solution

39. Infinite solutions

40. A single solution

41. Infinite solutions

42. No solution