


See Video 2.1 


OBJECTIVE

1

9. Complete these statements based on the lecture given before  Example 1. The addition property of equality allows us to add the same number to (or subtract the same number from) \_\_\_\_\_ of an equation and have an equivalent equation. The multiplication property of equality allows us to multiply (or divide) both sides of an equation by the \_\_\_\_\_ nonzero number and have an equivalent equation.


OBJECTIVE

2

10. From  Example 2, if an equation is simplified by removing parentheses before the properties of equality are applied, what property is used?


OBJECTIVE

3

11. In  Example 3, what is the main reason given for first removing fractions from the equation?

OBJECTIVE

4

12. Complete this statement based on  Example 4. When solving a linear equation and all variable terms subtract out and:  
 a. you have a \_\_\_\_\_ statement, then the equation has all real numbers for which the equation is defined as solutions.  
 b. you have a \_\_\_\_\_ statement, then the equation has no solution.

## 2.1 Exercise Set

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Solve each equation and check. See Examples 1 and 2.

- |                        |                        |
|------------------------|------------------------|
| 1. $-5x = -30$         | 2. $-2x = 18$          |
| 3. $-10 = x + 12$      | 4. $-25 = y + 30$      |
| 5. $x - 2.8 = 1.9$     | 6. $y - 8.6 = -6.3$    |
| 7. $5x - 4 = 26 + 2x$  | 8. $5y - 3 = 11 + 3y$  |
| 9. $-4.1 - 7z = 3.6$   | 10. $10.3 - 6x = -2.3$ |
| 11. $5y + 12 = 2y - 3$ | 12. $4x + 14 = 6x + 8$ |

Solve each equation and check. See Examples 3 and 4.

- |                                     |                          |
|-------------------------------------|--------------------------|
| 13. $3x - 4 - 5x = x + 4 + x$       | 18. $2(4x + 3) = 7x + 5$ |
| 14. $13x - 15x + 8 = 4x + 2 - 24$   | 20. $6x = 4(x - 5)$      |
| 15. $8x - 5x + 3 = x - 7 + 10$      |                          |
| 16. $6 + 3x + x = -x + 8 - 26 + 24$ |                          |
| 17. $5x + 12 = 2(2x + 7)$           |                          |
| 19. $3(x - 6) = 5x$                 |                          |
| 21. $-2(5y - 1) - y = -4(y - 3)$    |                          |
| 22. $-4(3n - 2) - n = -11(n - 1)$   |                          |

Solve each equation and check. See Examples 5 through 7.

- |  |   |
|--|---|
| 23. $\frac{x}{2} + \frac{x}{3} = \frac{3}{4}$      | 24. $\frac{x}{2} + \frac{x}{5} = \frac{5}{4}$     |
| 25. $\frac{3t}{4} - \frac{t}{2} = 1$               | 26. $\frac{4r}{5} - \frac{r}{10} = 7$ ✓           |
| 27. $\frac{n-3}{4} + \frac{n+5}{7} = \frac{5}{14}$ | 28. $\frac{2+h}{9} + \frac{h-1}{3} = \frac{1}{3}$ |
| 29. $0.6x - 10 = 1.4x - 14$                        | 30. $0.3x + 2.4 = 0.1x + 4$ ✓                     |

- |   |  |
|---|--|
| 31. $\frac{3x-1}{9} + x = \frac{3x+1}{3} + 4$ | 32. $\frac{2z+7}{8} - 2 = z + \frac{z-1}{2}$ |
| 33. $1.5(4-x) = 1.3(2-x)$                     | 34. $2.4(2x+3) = -0.1(2x+3)$                 |

Solve each equation. See Examples 8 and 9.

- |                               |                           |
|-------------------------------|---------------------------|
| 35. $4(n+3) = 2(6+2n)$        |                           |
| 36. $6(4n+4) = 8(3+3n)$       |                           |
| 37. $3(x+1) + 5 = 3x + 2$     | 38. $4(x+2) + 4 = 4x - 8$ |
| 39. $2(x-8) + x = 3(x-6) + 2$ |                           |
| 40. $5(x-4) + x = 6(x-2) - 8$ |                           |
| 41. $4(x+5) = 3(x-4) + x$     | 42. $9(x-2) = 8(x-3) + x$ |

### MIXED PRACTICE

Solve each equation. See Examples 1 through 9.

- |  |                                     |
|--|-------------------------------------|
| 43. $\frac{3}{8} + \frac{b}{3} = \frac{5}{12}$ | 44. $\frac{a}{2} + \frac{7}{4} = 5$ |
| 45. $x - 10 = -6x - 10$                        | 46. $4x - 7 = 2x - 7$               |
| 47. $5(x-2) + 2x = 7(x+4) - 38$                |                                     |
| 48. $3x + 2(x+4) = 5(x+1) + 3$                 |                                     |
| 49. $y + 0.2 = 0.6(y+3)$                       |                                     |
| 50. $-(w+0.2) = 0.3(4-w)$                      |                                     |
| 51. $\frac{1}{4}(a+2) = \frac{1}{6}(5-a)$      |                                     |
| 52. $\frac{1}{3}(8+2c) = \frac{1}{5}(3c-5)$    |                                     |
| 53. $2y + 5(y-4) = 4y - 2(y-10)$               |                                     |