# [1.2] Solving Linear Equations

① $18 \cdot \frac{1}{2}(x+8) = \frac{5}{9} \cdot 18$

To get rid of the Fractions, multiply by the LCM.

$9(x+8) = 10$

$9x + 72 = 10$

$-72 \quad -72$ ← optional

$\frac{9x}{9} = \frac{-62}{9}$

$\boxed{x = -\frac{62}{9}}$

② $100(3.2x + 1.07) = (5.89)100$

$320x + 107 = 589$

$-107 \quad -107$ ← (optional)

$\frac{320x}{320} = \frac{482}{320} = \frac{241}{160}$

$\boxed{x = \frac{241}{160}}$

Textbook
page 16; #11, (#16-36) × 2
↑ even #'d problems

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Practice Tutorial

Additional Exercises Available Online

## PRACTICE & PROBLEM SOLVING

### UNDERSTAND

10. **Use Structure** What could be a first step to solving the equation $3x + -0.5(x + 3) + 4 = 14$? Explain. MP.7

11. **Make Sense and Persevere** The sum of four consecutive integers is –18. What is the greatest of these integers? MP.1

12. **Error Analysis** Describe and correct the error a student made when solving the equation $4 = -2(x - 3)$. What is the correct solution? MP.3

$$\begin{aligned} 4 &= -2(x - 3) \\ 4 &= -2x - 6 \\ 4 + 6 &= -2x - 6 + 6 \\ 10 &= -2x \\ \frac{10}{-2} &= \frac{-2x}{-2} \\ -5 &= x \end{aligned}$$ ✗

13. **Communicate Precisely** Parker ran on a treadmill at a constant speed for the length of time shown. How many miles did Parker run? Explain. MP.6


14. **Reason** The Division Property of Equality says that for every real number $a$, $b$, and $c$, if $a = b$ and $c \neq 0$, then $\frac{a}{c} = \frac{b}{c}$. Why does the property state that $c \neq 0$? MP.2

15. **Higher Order Thinking** Tonya's first step in solving the equation $\frac{1}{2}(2y + 4) = -6$ is to use the Distributive Property on the left side of the equation. Deon's first step is to multiply each side by 2. Which of these methods will result in an equivalent equation? Explain.

### PRACTICE

**Solve each equation.** SEE EXAMPLES 1 AND 2

16. $-4x + 3x = 2$

17. $7 = 5y - 13 - y$

18. $7m - 4 - 9m - 36 = 0$

19. $-2 = -5t + 10 + 2t$

**Solve each equation.** SEE EXAMPLES 3 AND 4

20. $2(2x + 1) = 26$

21. $-2(2z + 1) = 26$

22. $92 = -4(2r - 5)$

23. $10(5 - n) - 1 = 29$

24. $-(7 - 2x) + 7 = -7$

25. $200 = 16(6t - 3)$

**Solve each equation.** SEE EXAMPLE 5

26. $\frac{1}{2}x + 2 = 1$

27. $\frac{3}{2}x - \frac{2}{3}x = 2$

28. $\frac{1}{5}(k - 3) = \frac{3}{4}$

29. $\frac{7}{60} = \frac{5}{24}w + \frac{11}{12}$

30. $\frac{3m}{4} - \frac{m}{12} = \frac{7}{8}$

31. $1{,}290 = \frac{h}{10} + \frac{h}{5}$

**Solve each equation.**

32. $0.1r - 1 = 0.65$

33. $1.2n + 0.68 = 5$

34. $0.025(q + 2) = 2.81$

35. $-0.07p - 0.6 = 5$

36. $1.037x + 0.02x + 25 = 30.285$

37. $-0.85t - 0.85t - 3.9 = -8.15$

38. A bee flies at 20 feet per second directly to a flowerbed from its hive. The bee stays at the flowerbed for 15 minutes, then flies directly back to the hive at 12 feet per second. It is away from the hive for a total of 20 minutes. SEE EXAMPLE 5

    a. What equation can you use to find the distance of the flowerbed from the hive?

    b. How far is the flowerbed from the hive?