

Unit 3 - Equations

Solving Equations with the Variable on Both Sides Section 7.4 Pg. 354-355	Move variables to the Left Side, and constants to the Right Side Classwork p. 355: 3-7, 11, 15, 17, 20, 21, 25, 32, 33, 39, 40, 44 <u>Homework</u> p. 355: 12, 14, 16, 22, 23, 24, 26, 29, 31, 34, 37, 38, 41, 43, 46, Bonus: 45
--	---

Note: We will continue to use **SAMDEB**

Goal: " $x = \text{answer}$ " we want variable terms on the left side, and constants on the right side

Classwork: Pg. 355

Solve.

3. $5x = 4x + 7$

$$5x - 4x = 4x - 4x + 7$$

$$x = 7$$

5. $3m = m + 4$

$$3m - m = m - m + 4$$

$$2m = 4$$

$$\Rightarrow \frac{2m}{2} = \frac{4}{2}$$

$$m = 2$$

4. $6y = 7y - 4$

$$6y - 7y = 7y - 7y - 4$$

$$-y = -4 \Rightarrow \frac{-y}{-1} = \frac{-4}{-1}$$

7. $9t = 5t - 8$ $\therefore y = 4$

$$9t - 5t = 5t - 5t - 8$$

$$4t = -8$$

$$\frac{4t}{4} = \frac{-8}{4}$$

$$t = -2.$$

Solve and check.

11. $2x = -30 + 5x$

$$\begin{aligned} 2x - 5x &= -30 + 5x - 5x \\ -3x &= -30 \\ \frac{-3x}{-3} &= \frac{-30}{-3} \\ x &= 10 \end{aligned}$$

Check

LHS

$$\begin{aligned} \text{RHS} \\ -30 + 5x \\ -30 + 5(10) \\ = -30 + 50 \\ = 20 \\ = \text{LHS} \end{aligned}$$

15. $2a = 0.35 - 5a$

$$\begin{aligned} 2a + 5a &= 0.35 - 5a + 5a \\ 7a &= 0.35 \\ \frac{7a}{7} &= \frac{0.35}{7} \\ a &= 0.05 \end{aligned}$$

LHS RHS

$$\begin{aligned} 2(0.05) &= 0.35 - 5(0.05) \\ 0.1 &= 0.35 - 0.25 \\ &= 0.1 \end{aligned}$$

Solve.

17. $2x + 3x = 8x - 3$

$$\begin{aligned} 5x &= 8x - 3 \\ 5x - 8x &= 8x - 8x - 3 \\ -3x &= -3 \\ \frac{-3x}{-3} &= \frac{-3}{-3} \\ x &= 1 \end{aligned}$$

19. $3y + y = 2y - 8$

$$\begin{aligned} 4y &= 2y - 8 \\ 4y - 2y &= 2y - 8 - 2y \\ 2y &= -8 \\ y &= -4 \end{aligned}$$

23. $6r + 4r = 16 + 2r$

$$\begin{aligned} 10r - 2r &= 16 + 2r - 2r \\ 8r &= 16 \\ \frac{8r}{8} &= \frac{16}{8} \\ r &= 2 \end{aligned}$$

25. $5x - 3x = 4x - 2$

$$\begin{aligned} 2x &= 4x - 2 \\ 2x - 4x &= 4x - 4x - 2 \\ -2x &= -2 \\ \frac{-2x}{-2} &= \frac{-2}{-2} \\ x &= 1 \end{aligned}$$

Solve and check.

26. $7x - 4x = x + 6$

$$7x - 4x - x = x + 6 - x$$

$$\begin{aligned} \text{LHS} & \quad \text{RHS} \\ 7x - 4x & \quad x + 6 \\ = 3x & \quad 3 + 6 \\ = 3(3) & \quad = 9 \\ = 9 & \quad = 9 \end{aligned}$$

$$\begin{aligned} 2x &= 6 \\ 2x &= 6 \\ \frac{2x}{2} &= \frac{6}{2} \\ x &= 3 \end{aligned}$$

28. $4t - 7t = -7 - 2t$

$$\begin{aligned} -3t &= -7 - 2t \\ -3t + 2t &= -7 - 2t + 2t \\ -t &= -7 \\ \frac{-t}{-1} &= \frac{-7}{-1} \\ t &= 7 \end{aligned}$$

$$\begin{aligned} \text{LHS} & \quad \text{RHS} \\ 4t - 7t & \quad -7 - 2t \\ = -3t & \quad -7 - 2(7) \\ = -3(7) & \quad = -7 - 14 \\ = -21 & \quad = -21 \end{aligned}$$

Solve. Abe

33. $15x - 7x = -52 - 5x$

$$15x - 7x = -52 - 5x$$

$$15x - 7x + 5x = -52 - 5x + 5x$$

$$\frac{13x}{13} = \frac{-52}{13}$$

$$x = -4$$

42. $65 + n = 85 - 16 + 3n$

$$65 + n - 3n = 85 - 16$$

$$+65 - 2n = 69$$

$$65 - 65 - 2n = 69 - 65$$

$$-2n = 4$$

$$\frac{-2n}{-2} = \frac{4}{-2}$$

$$n = -2$$



Helen

35. $7t + 53 = 14 - 6t$

$$7t + 6t + 53 = 14 - 6t + 6t$$

$$13t + 53 = 14$$

$$13t + 53 - 53 = 14 - 53$$

$$13t = -39$$

$$\frac{13t}{13} = \frac{-39}{13}$$

$$t = -3$$