ALBERT

Name _____ Date _____

Multi-Step Equations Worksheet

Grade 8 · Common Core 8.EE.C.7b

> Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

Practice

Builds the skill step by step.

1. Solve for x: $3x + 5 = 2x + 9$

2. Solve for x: $5x - 3 = 2x + 12$

3. Solve for x: $2(x + 4) = 20$

4. Solve for x: $4x + 2x - 3 = 15$

5. Solve for x: $3(x - 2) = x + 4$

6. Solve for x: $7x - 4 = 3x + 8$

7. Solve for x: $0.5x + 2 = 7$

8. Solve for x: $\frac{1}{3}x - 1 = 4$

9. What is a good first step to solve $4(x + 3) = 2x$?

   A. Add 4 to both sides

   B. Divide both sides by 2x

   C. Distribute the 4

   D. Subtract 3 from both sides

10. Solve for x: $9 - x = 2x + 3$

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On Level

Grade-level practice.

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

2. Solve for x: $0.4x + 1.2 = 0.1x + 3.3$

3. Solve for x: $\frac{2}{3}x + 4 = \frac{1}{3}x + 7$

4. Solve for x: $5(x - 1) - 2x = 2(x + 3)$

5. Solve for x: $-3(2x + 4) = 2x + 4$

6. Solve for x: $1.5(x + 4) = 2x + 3$

7. Solve for x: $\frac{3}{4}(x - 8) = x - 10$

8. What is the solution of $4(x - 2) = 2(x + 5)$?

   A. $x = 3$

   B. $x = 6$

   C. $x = 7$

   D. $x = 9$

9. Plan A costs 25 dollars a month plus 0.10 dollar per minute. Plan B costs 15 dollars a month plus 0.15 dollar per minute. Solve $25 + 0.10m = 15 + 0.15m$ to find the minutes m where the plans cost the same.

10. Solve for x: $8 - 2(x - 3) = 4x - 10$

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Challenge

Multi-step and word problems that stretch it.

1. Solve for x: $\frac{1}{2}(4x - 6) + 3x = 2(x + 9)$

2. Solve for x: $0.2(5x - 10) = 0.5(x + 6)$

3. Solve for x: $3(2x - 5) - 4(x - 1) = 13$

4. Solve for x: $-\frac{2}{5}(10x - 15) = 6 - 2x$

5. Ty solves $5 - 2(x + 1) = 9$. He writes $5 - 2x + 1 = 9$, then $6 - 2x = 9$, so $x = -1.5$. What is the correct solution?

   A. $x = -6$

   B. $x = -3$

   C. $x = -1.5$

   D. $x = 3$

6. A rectangle has length $2x + 3$ and width $x - 1$. Its perimeter is 40. Find x.

7. One number is 4 more than twice another number, x. The two numbers add to 31. Find x.

8. Solve for x: $\frac{5}{6}x - \frac{1}{2} = \frac{2}{3}x + 2$

9. Solve for x: $1.2(x - 5) + 0.8x = 3(x - 4)$

10. Gym A charges 40 dollars to join plus 25 dollars a month. Gym B charges 100 dollars to join plus 15 dollars a month. Solve $40 + 25m = 100 + 15m$ to find the number of months m when the totals are equal.