

Q1 Variables on Both Sides Equations Assignment 2

Name: _____ Date: _____ Period: _____

Solving Linear Equations
Variables on Both SidesSolve each equation. Show each step of your work. *Check your solution.*

1. $4x + 2x + 2 = 3x - 7$

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

3. $8y - 6 = \frac{2}{3}(6y + 15)$

4. $9 - 6(x + 1) = 2(x - 4) + 27$

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

6. $\frac{1}{8}(3d - 2) = \frac{1}{4}(d + 5)$

7. $8x + 4(4x - 3) = 4(6x + 4) - 4$

8. $6.78x - 5.2 = 4.33x + 2.15$

9. $4(x + 3) - 4 = 8\left(\frac{1}{2}x + 1\right)$

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Solve each equation. Show each step of your work. Check your solution.

1. A car dealership sold 78 new cars and 67 used cars this year. The number of new cars sold by the dealership has been increasing by 6 cars each year. The number of used cars sold by the dealership has been decreasing by 4 cars each year. If these trends continue, in how many years will the number of new cars sold be twice the number of used cars sold?
2. Three-halves of the difference of a number and two is one more than twice the same number.
3. Four times the difference of a number and two is four more than six times the number.
4. Two students' solutions to the equation $6(x + 4) = 3x - 2$ are shown. Both students made an error. Find the errors and give a correct solution.

Student 1

$$\begin{aligned}6(x + 4) &= 3x - 2 \\x + 4 &= 3x - 2 - 6 \\x + 4 &= 3x - 8 \\x + 4 + 8 &= 3x - 8 + 8 \\x + 12 &= 3x \\12 &= 2x \\x &= 6 \quad \times\end{aligned}$$

Student 2

$$\begin{aligned}6(x + 4) &= 3x - 2 \\6x + 4 &= 3x - 2 \\3x + 4 &= -2 \\3x + 4 - 4 &= -2 - 4 \\3x &= -6 \\x &= -2 \quad \times\end{aligned}$$