Essential Question: How do we solve multi-step equations?

Do Now: Solve each equation.

(a) $x + 4 = -8$ (b) $x - 0.5 = 4.5$ (c) $-2x = 16$ (d) $-x = 4$ (e) $\dfrac{x}{5} = -3$

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Solving Equations

Key Concepts:
1. Use inverse operations to undo what is being done to the variable.
2. When "undoing" what was "done," always go in the reverse order of operations (the last operation done is always the first to be undone.)
3. Remember, an equation is like a balance – the same operation must be done to both sides.
4. All equations must be simplified before solving.
5. When solving equations with variables on both sides, bring variables to one side and numbers to the other, then solve.
6. Try to show RESULT STEPS only!
7. Check the solution!

Examples:

(1) $\dfrac{2}{3}x = -6$

(2) $3x - 2 = 7$

(3) $-2 = \dfrac{x}{4} + 6$

(4) $\dfrac{x-7}{2} = 5$

(5) $2x + 4 - 3x = -3$

(6) $2x + 3(x - 4) = 18$

(7) $x + 4 = 2x - 5$

(8) $\dfrac{3}{4}(24 - 8x) = 2(5x + 1)$

(9) $2(10x - 15) = 5(4 - x)$