Algebra 3-5: Solving ax + b = c

Warm-Up

1. ABC is translated to A'B'C' by sliding 3 units down and 2 units to the left. The coordinates of ABC are A (1, 0), B (2, -3), and C (-4, -1). What are the coordinates of A'B'C'?

y - 3 x - 2

A'(-1, -3) B'(0, -6) C'(-6, -4)

y - 3 x - 2

2. LMN is translated 3 units down and 2 units left. What are the coordinates of L'M'N', if L is (x, y), M is (s, t), and N is (q, r)?

L'(x-2, y-3) M'(s-2, t-3) N'(q-2, r-3)

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Goal: Our goal is to isolate the variable (Get variable by itself).

We will ALWAYS have a correct answer because we can Check **our answer by** plugging the answer into the equation.

When solving 2 step equations ask yourself the following questions…

1. Can you combine anything on the left-hand side **(LHS)?** Do it!
2. Can you combine anything on the right-hand side **(RHS)?** Do it!
3. What side is the **variable** on?
4. Is there a number being **added/subtracted** to THAT side? Get rid of it! Do the opposite.
5. Is the variable being **multiplied** by anything? Get rid of it! Do the opposite.
6. Check your answer.
7. In order to easily see your answer, circle (box) it.

Examples

1. $3x - 3 = 15$

$+3 \quad +3$

$\frac{3x}{3} = \frac{18}{3}$

$x = 6$

$3 \cdot 6 - 3 = 15$

$15 = 15$ ✓

2. $7e + 2 = 3 + 6$

$7e + 2 = 9$

$-2 \quad -2$

$\frac{7e}{7} = \frac{7}{7}$

$e = 1$

$7 \cdot 1 + 2 = 9$

$9 = 9$ ✓

3. $2v - (-2) = 8$

$2v + 2 = 8$

$-2 \quad -2$

$\frac{2v}{2} = \frac{6}{2}$

$v = 3$ ✓

4. **$15 = 6 - 3r$**

$-6 \quad -6$

$\frac{9}{-3} = \frac{-3r}{-3}$

$-3 = r$

$15 = 6 - 3(-3)$

$15 = 6 + 9$

$15 = 15$

5. ~~$-3tk + 5 = 3.5$~~

$-3k + 5 = 3.5$

$-5 \quad -5$

$\frac{-3k}{-3} = \frac{-1.5}{-3}$

$k = .5$

6. $\frac{1}{2}x - 5 = 23$

$+5 \quad +5$

$\frac{1}{2}x = \frac{28}{1} \cdot \frac{2}{1}$

$x = 56$

$\frac{.5x}{.5} = \frac{28}{.5}$

$x = 56$