

Solving Equations With a Variable on Both Sides Class Work

🦋 You will be able to... solve multi-step equations & check your solutions,

★ Consider This...

Can you determine how many pounds one star weighs? Each square block weighs one pound. Justify your answer.



How much does one star weigh in this case? Justify your answer.



○

Solving Equations With a Variable on Both Sides

* The first step in solving equations with the variable on both sides is to _____

Then, solve as you normally would! ☺

Guided Examples: SOLVING EQUATIONS WITH THE VARIABLE ON BOTH SIDES

Solve each equation, and check your solution.

A. $-2x + 5 = 3x - 10$

B. $4 + 8x = -2x + 34$

Now You Try Some!

1. Solve each equation, and check your solution.

a. $4 + 3x = 2x - 9$

b. $5y - 7 = 8y + 5$

c. $-10z + 20 = 40 - 30z$

d. $5(2x + 10) = -2(3x - 65)$

e. $-9(2x - 3) = 3(4x + 8)$

f. $4w - 1 = -4w + 1$

Identities and Equations with No Solutions

Sometimes when solving an equation, the variable will actually be eliminated.

If this is so, you will either be left with.... a **true** statement: **IDENTITY** (both sides are the same)

OR

a **false** statement: **NO SOLUTION** (impossible equation)

***Examples:**

A. $-3(x + 6) = -3x - 18$

B. $7(2x - 10) = 14x + 20$

Now You Try Some!

2. Determine whether each equation has no solution or represents an identity. Support your answer.

a. $6r + 16 = 6(r + 2)$

b. $-8(2x + 5) = -16x - 40$

c. $-5(3b + 10) = -15b + 50$

d. $4d + 18 = 2(2d + 9)$

***In an identity equation, how many solutions are there, and why?!**



Based on which letter you are assigned, write a tweet about the corresponding topic on a post-it note! Then post it on the board and “star” your favorite!



A. Identity Equations

B. Equations Without Solutions

C. Solving Equations When the Variable is on Both Sides

D. Checking Your Work

Homework: p. 98-100 #3-15 (odds only), 21-36 (multiples of 3 only), and 46

Just for Fun: Can you create an equation that has no solution?! Can you create an equation that represents an identity?! Try to create one (or both) of these, and explain your thought process throughout doing so! 😊