AS PROMISED!

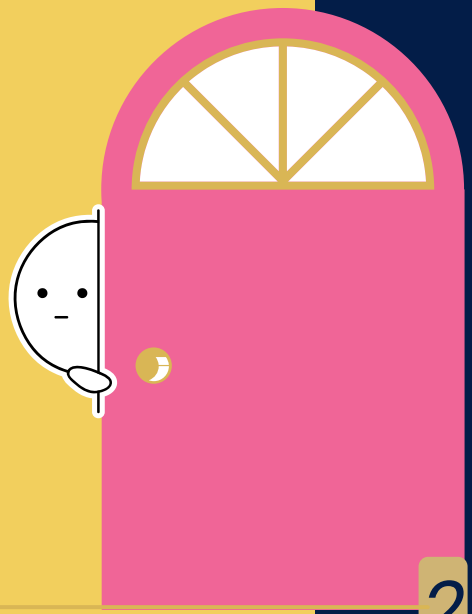
YOUR WEBINAR BONUS

A Sneak Peek Inside Math YES Diagnostic Test Audit

PLUS, 2 Real Math Problems With Answers & Explanation

By Ralph Schatzki & Pradichaya Poonyarit

Here's Your Sneak Peek Inside Math YES Diagnostic Test Audit



MY

From Math *Less* To Math **Yes**

GRADES 5-7

Diagnostic Test Audit

Let's do

Math Without FEAR

MY

I AIN'T AFRAID OF NO MATH!

Math Busters!

7 A school has 320 students. If the ratio of boys to girls is 3:2, how many more boys are in the school than girls?

8 Using mathematical operations, show whether or not the following equation is true:
3 - (6 - (-2 - 4)) = 2(5 - (4 - 2)) + (3 - 6)

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GRADES 8-11

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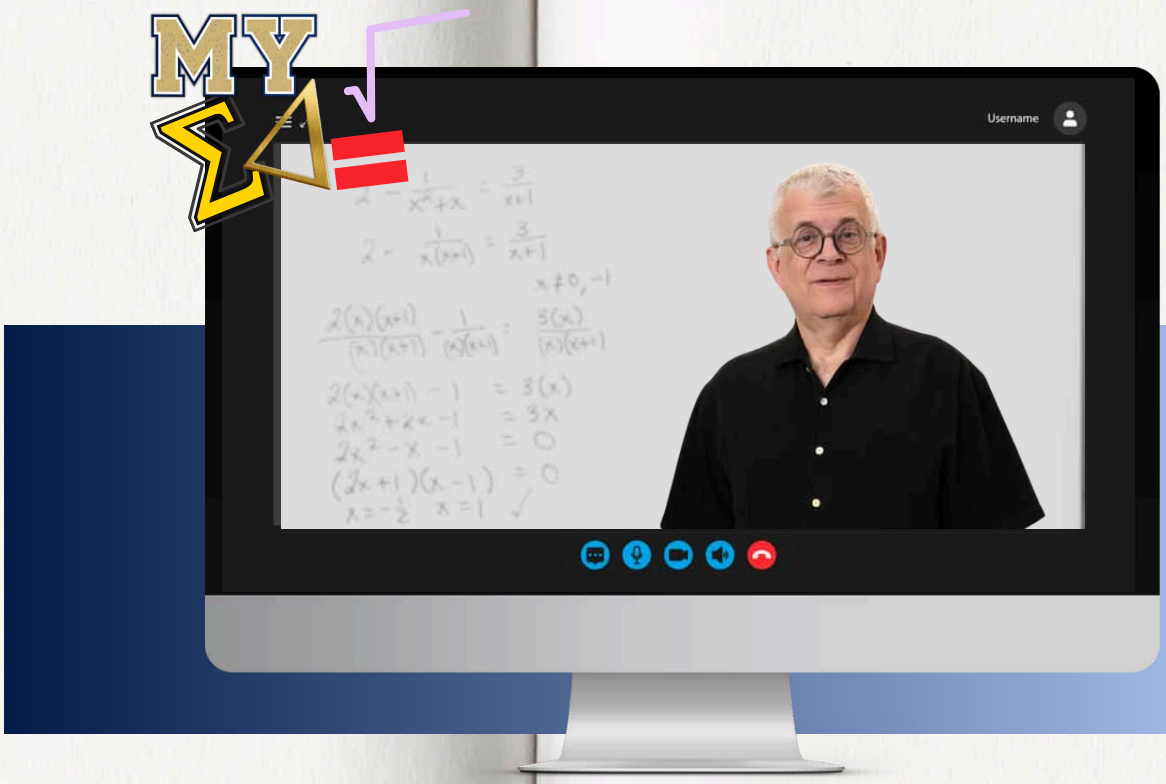
Simplify:

4 $3 - (2 - 8)^2$

5 $8 \div 2 \cdot 3 + 4(-3)^2$

6 $3(2 - (4 - 32(-1 - 3)) + 5) - 8$

Ready to do some math?



The next few pages are 2 problems your child (Or, You) can work on.

Then, my answers with explanations are shown, so you can see my approach, and your child can see those steps on how they can solve them.

Ask your child to do these 2 problems.

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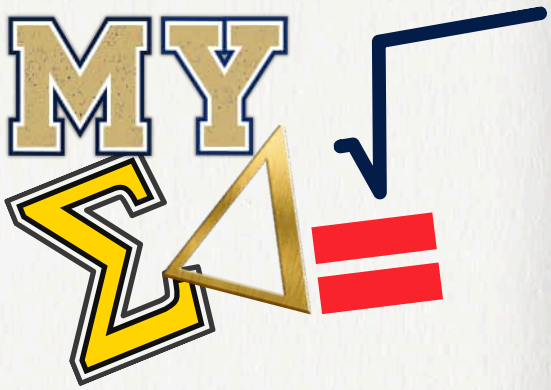
PRINT ME!

Psst! No worries! Let them know this is for them (and you) to see if they need extra math TLC. 🤗

1 $3(x - 2) = x + 4$

2 $(2x - 1)/(x) = (4)/(5)$



Ralph Schatzki

SOLVING LINEAR EQUATIONS

Pre-Algebra

Let's now take a look at a relatively straightforward problem, similar to the kind you might find in any pre-Algebra class or my diagnostic test audit.

You can see the different things that it contains, any one of which could throw a student, and get an idea of how I might approach a mistake your child might make, in order to get them to improve:

Problem 1: 3(x – 2) = x + 4

First of all, **math problems almost always come with instructions**; *but as you can see*, there are **none** here.

Nevertheless, this is a very common problem in which we are being asked to find the value of the variable, **x,** that makes the equation true.

It should go without saying, but a lot of **students ignore the fact** that it is **always a good idea to know** what the goal is before proceeding.

I always urge students to take a step back before jumping into any problem.

(As a side note, this is probably the most important thing a struggling math student can do.

The inclination is to do a problem quickly and get it done- there, it's done!

But a hurried approach often leads students down the wrong path.

If the problem starts correctly, though, it has a chance of being correct the whole way through.)

Since this is an equation, we are able to use the fact that the quantities on each side are the same value.

This allows for a particular approach that happens in almost EVERY equation; namely, **the same thing can be done to each quantity to rewrite equations that are equivalent.**

This allows us to get the variable by itself.

Students must see that this is an equation!

This problem contains an example of the **Distributive Property**, which many students forget (or never learn).

The 3 means we have 3 times the parentheses, or 3 OF the parentheses, which means we have 3 x's AND 3 -2's, or 3x – 6.

So, we can rewrite the equation as **3x – 6 = x + 4.**

In most equation problems, this is the first step to the answer: simplifying each side.

(If you don't recall what simplification is, that's okay. But you do need to know!)

Once the sides are simplified, we can begin solving.

Again, this happens in pretty much every equation.

Solving *involves* what I **mentioned above**: that in an equation we can do the same thing to each quantity.

For instance, we could add 6 to both sides.

(It should make sense to you that we can do this, since **if two things are equal, 6** more than **the two things** will also **be equal to each other.**

They're not the same as what they were before, but they are equal to each other, and that's really all the equation tells us!)

Since this is an equation, we are able to use the fact that the quantities on each side are the same value.

So we now have 3x = x + 10.

[After adding 6 to both sides, **-6 + 6 is 0** (because we wanted to get rid of -6, we had to add 6) and 4 + 6 is 10.]

Now, it's important to have the x's only on one side. Subtract an x from each side, and we have 2x = 10.

[This step often causes confusion: it's one thing to add a known quantity, like 6, to both sides.

But subtracting an unknown quantity from both sides is weird: how do we know we're doing the same thing to both sides if we don't even know what the value of x is?

Well, while it's true we don't know what x is- of course we don't: that's the goal of the problem!- we DO know that x equals itself.

Since the rule is that whatever we do to one side we do to the other, adding x to both sides is fine!]

Finally, we need to get rid of that 2.

Answer 1: It is multiplying the x, so we divide both sides by 2, and we have **x = 5, which is the answer.**

(*It's also a very good idea to check your answer, and you can do that and see that the original equation, when x is 5, says 9 = 9... which is obviously correct.*)

Now that problem may have been easy for you. Or not.

But I hope at least that you can see all the things that are involved in it.

Problem 2: (2x – 1)/(x) = (4)/(5)

Answer 2 : x = 5/6

Explanation:

A lot of students find this kind of problem to be more difficult because it contains fractions.

However, because it is an equation- we all see the equal sign- we have a lot more flexibility because we are solving, not just simplifying.

Remember: in an equation the only thing that matters is that **the two expressions are equal to** one another, **not** that they remain the same as they began the problem.

There are a number of different approaches one could take to solve this, but because the problem is a fraction equal to another fraction, we have a specific kind of equation called a proportion.

(A proportion is an equation that states two fractions are equal to each other.)

There is a "trick" to solving proportions called **cross-multiplication,** where the numerator of each fraction is multiplied by the denominator of the other fraction, and those products are then equal to each other.

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1. It's not really a trick: we're just multiplying both sides of the original problem by both denominators.
2. Don't use this method for any other kind of problem!

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So, we have (2x – 1)(5) = (x)(4)

This might look a bit funny, so we can rearrange it:

5(2x – 1) = 4(x)

(You may remember that when you are multiplying two quantities together that their order doesn't matter. This is the Commutative Property of multiplication.)

Now, using the Distributive Property, we have 10x – 5 = 4x

Each side is now fully simplified, so we begin solving.

Remember that we are looking for the value of x that makes the equation true, so we need to isolate x on one side of the equation.

The fastest way to do this is to subtract 10x from each side- you can see that gets all the x's on one side of the equal sign, and all the numbers are already on the other.

After removing 10x from each side, we have **-5 = -6x**

All we need to remove is the -6, and the x will be by itself!

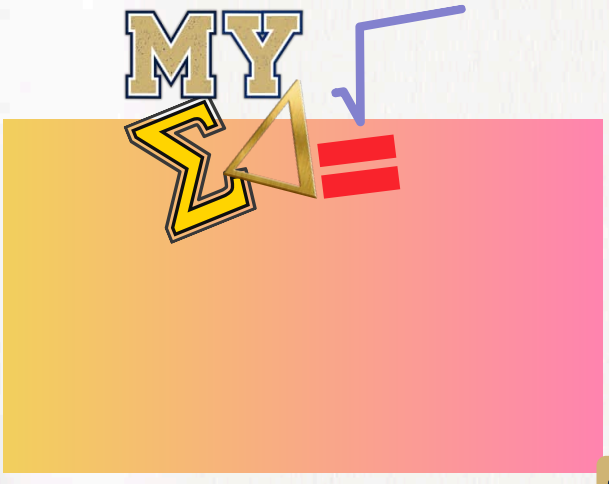
Since the -6 is multiplying the x (it is not subtraction! We are not taking 6x away from anything.) we simply divide each side by **-6, so (-5)/(-6) = x**

Recall that a negative divided by a negative is positive, so **5/6 = x, or x = 5/6**

Suggested questions for you to ask your child:

Did you solve the problems? Which part(s) kept you stuck?

To ensure their math success, these are examples of the foundational skills your child should be equipped with when they enter high school math.



WE SEE YOU.
WE GOT YOU.

READY FOR YOUR CHILD'S TRANSFORMATION

FROM math-less
TO math YES

5-7 Grades 8-11

Want to Hear the Full Story?

🎥 Watch the Parent Webinar Now

Struggling in math doesn't mean your child isn't capable.

It just means they need to be seen.

It's not too late to understand what your child needs.

Pradichaya & Ralph