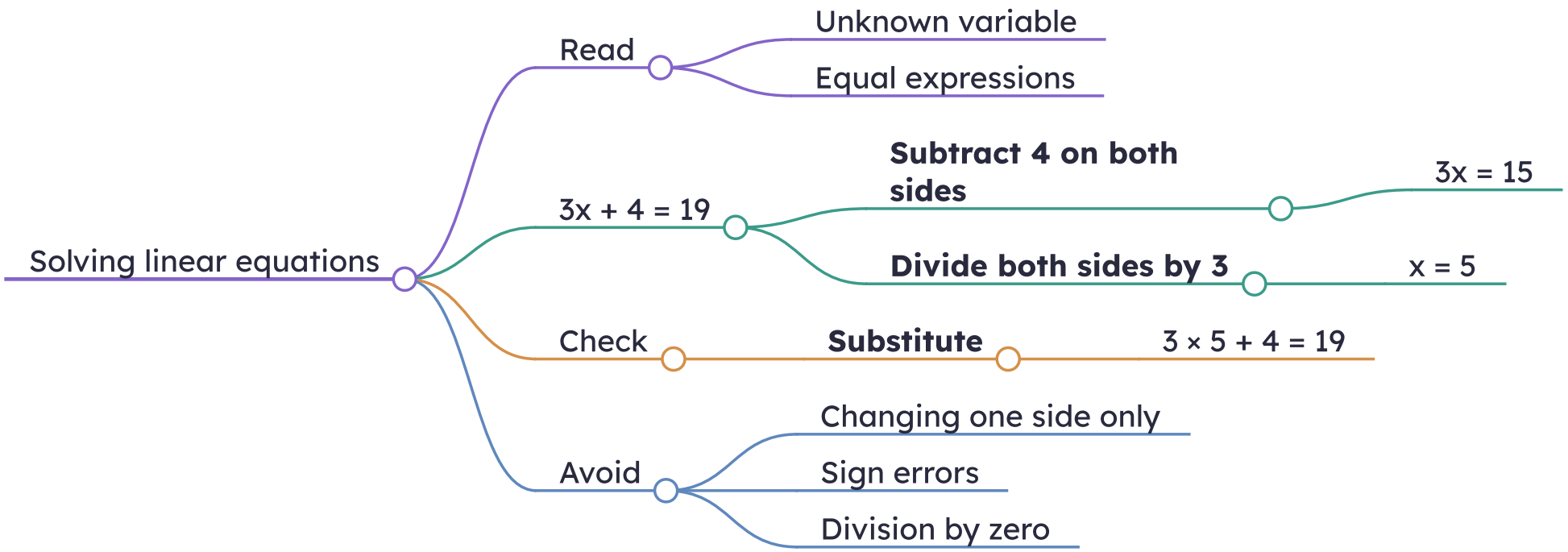
Solving linear equations

Keep both sides equivalent and verify the solution in the original equation.



Read one branch at a time. Then cover the details and explain them in your own words.

Understand the topic

An equation states that two expressions have equal value. Apply operations to both sides that preserve equality. For 3x + 4 = 19, subtract 4 from both sides and then divide by 3 to obtain x = 5. Substitution checks that the original equation is satisfied.

How the map is organized

Read, transform, solve, and check. Record the operation rather than relying on a mysterious sign-change rule.

> **Watch out for this**
> Changing one side alone generally breaks equality. Never divide by zero.

Try it yourself

Solve 4x − 3 = 17, showing both sides at each step. Write another equation with the same solution and check it.

Two questions to answer

What solves 4x − 3 = 17?

Add 3 to both sides, then divide by 4.

How can you check a solution?

The two original expressions must have equal value.

Sources

openstax.org
https://openstax.org/books/prealgebra-2e/pages/8-1-solve-equations-using-the-subtraction-and-addition-properties-of-equality

Original practice material compiled by Studera.ai. Explore at studera.ai/en/resources/mind-map-examples.