

Why when doing math problems, when presented solutions, I understand them very easily, but when doing them myself, I can't?



Alon Amit, PhD in Mathematics; Mathcircler.

Answered Oct 10 · Upvoted by Pepito Moropo, B.S. / M.S.

Mathematics and Sridhar Ramesh, Former Ph.D. student in mathematical logic, UC Berkeley

What sort of _____ problems?

- Is it “Solve $x^4 - 2x^2 = 3$ ”?
- Is it “A circus train and a snowmobile are heading towards each other at speeds...”?
- Is it “Black or white hats are to be placed randomly on your and your friend’s head, following which you both need to announce your own hat color simultaneously, without any communication, just based on seeing the other person’s hat. One of you, at least, must get it right. You can discuss your strategy now. What do you plan to do?”

In the first case, the problem is asking you to follow a known procedure you were taught. If you can’t, you need to deeply review the material and diligently solve easier problems. If you still can’t then go back and solve easier ones from earlier material, and if that fails than go back way more and try again. It takes time and effort but there’s no other way. You have a gap in your understanding, possibly an ancient one.

In the second case, you may be having trouble reading and interpreting word problems. Seek help from a good tutor. Many people struggle with this and there’s no easy fix.

If it’s the third case – a surprising, open ended math puzzle – then hooray, good news: it’s perfectly obvious why you can follow a solution but not find one. This is real math, requiring *creativity*, and that takes training, patience and work. The fact that you can understand a solution presented to you is good, but it doesn’t mean you will *find* the solution as easily. Finding solutions to creative problems is hard.

I don’t know which it is, so I can’t offer more direct help. Math can be hard, and it can be hard in more than one way for more than one reason. You need diagnosis, and that requires dialog and work