Which Student is Correct?

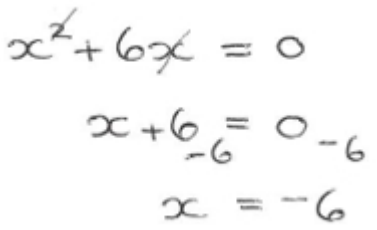
Annotation

Martine is able to identify where inverse operations have been applied correctly and where an error of judgement has been made when operating on quadratic equations. She recognises where an incorrect assumption leads to an incomplete solution for a quadratic problem.

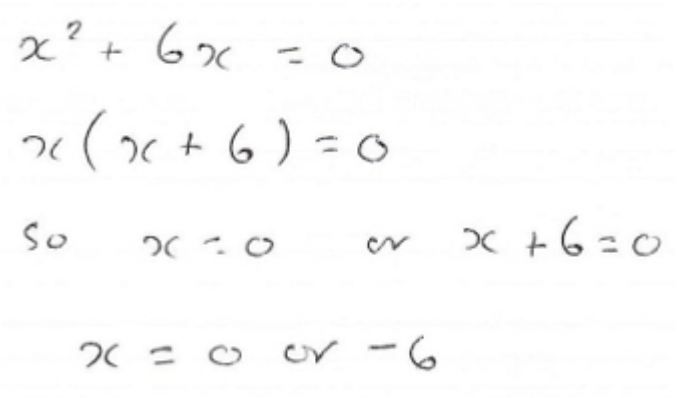
Problem: Which Student is Correct?

The teacher poses this problem:

Two students, A and B have attempted to solve the quadratic equation $\boldsymbol{x^2 + 6x = 0}$ *to find* $\boldsymbol{x}$*. Student A has shown three lines of working to get to one answer.*



Student B has shown different steps of working to get two solutions.



Which student is correct? Try to identify which student has made an error in their working.

Student Response

Teacher:	What can you tell me about these two students' working?
Martine:	Well... I've checked through and they both look like they've done the steps all right so it's kind of strange that B's got two answers and A's only got one. It's an x squared problem so we usually get two answers for those things. So I'm guessing B's right and A has missed off an answer somehow.
Teacher:	What has A done to miss a solution?

Martine: Well... the minussing of 6 from each side is okay coz you're always allowed to do that, so I'm looking at the dividing by x step. That kind of looks okay, and you're allowed to divide everything by x...oh,...unless you divide by zero.
You're not allowed to do that! You can't divide by x if x is zero. That was A's mistake. She didn't think 'what if x = 0. If she just tried putting 0 into the question she would have seen that zero works as well.