How big is the pen?

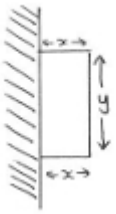
Annotation

Bill can work with multiple variables to form a quadratic equation to model a real-world situation. He uses systematic working, including the appropriate use of brackets, to simplify his model.

Problem: How big is the pen?

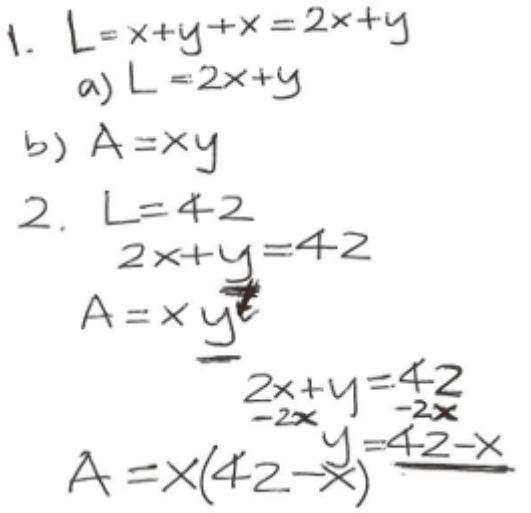
The teacher poses the following problem:

A farmer has a length of temporary fencing that he can place against an existing wall to form a rectangular pen.



1. *Use the symbols x and/or y to*
    1. *write an equation for L, the length of fencing used and*
    2. *an equation for A, the area of the pen.*
2. *The total length of fencing to be used is 42 m. Use your answers for 1. to form an equation of the area of the pen in terms of x only.*

Student Response



Teacher: Talk me through your thinking for part 2 of this problem.

Bill: Well I had equations with area and length using xs and ys and you only wanted area with xs so I had to get rid of some of the letters. There had to be a reason that you gave us the 42. So I looked at that and saw it was what L is equal to so I just put that in straight away.

Teacher: So you substituted 42 for L. Then what did you think about?

Bill: The question was about area so I wrote out the area equation again and looked at what had to go there. The y. My length equation had a y in it too so I knew I had to do some substituting again. But it wasn't all easy and ready to go...I had to get y on its own. So that's what the working in the next bit is about.

Teacher: I was pleased to see that you used some brackets in your last step.

Bill: Oh yeah...thanks. A was x times y and if I didn't put the brackets in then I would be saying A is x times a bit of y. I had to make sure it was x times all of y so I put brackets round all of y.