Problem of the Week #15

Starting Money

15

Willow bought a chocolate milk for $5.00, then spent $^1/_2$ of her remaining money on comics.

Next, she bought a banana for $2.00. Finally, she spent $^1/_2$ of her remaining money on a roll.

She had $10.00 left.

How much money did she start with?

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Problem of the Week #16

Big Spender

16

The Spender goes into a store and says to the owner:

"Give me as much money as I have with me, and I will spend $10."

It is done, and the Spender repeats the operation in a second and third store, after which the Spender has no money left.

How much did they start with?

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Teachers Notes:

Problem 15:

Working backwards problems are easily identified because they list a series of events.

Typically when solving them you start at the final event and work backwards to the start.

Students will need a knowledge of inverse operation to do this, for example if the last step involved adding they would need to subtract to go back one step.

Students also need to know that 'bought' means subtracting money.

Ends with $10. Spending half is the same as dividing by two, so working backwards we instead multiply by two. $20. Add two dollars back for the banana she bought, $22.

Another doubling to find the money spent on comics ($22) brings the total up to $44, plus five dollars for the chocolate milk. She started with $49.

This is an ideal problem for looking back / checking your work. With the answer in mind ($49) the student can run through the problem again and confirm they get the correct number at the end.

Problem 16:

$8.75

Students have to choose an amount to start with and use guess and check methods. The student will need to be systematic in their approach.

We encourage an educated guess and check method which is related to reasoning about the problem. One method is making one higher guess and one lower guess and using the answers given to refine the search.