

Substitution

Reasoning and Problem Solving

Here are two formulae.

$$p = 2a + 5$$

$$c = 10 - p$$

Find the value of c when $a = 10$

$$c = -15$$

$$x = 2c + 6$$

Whitney says,



$x = 12$ because c must be equal to 3 because it's the 3rd letter in the alphabet

Is Whitney correct?

Amir says,

$$\text{When } c = 5, x = 31$$



Amir is wrong.

Explain why.

What would the correct value of x be?

No Whitney is incorrect. c could have any value.

Amir has put the 2 next to the 5 to make 25 instead of multiplying 2 by 5

The correct value of x would be 16

Formulae

Reasoning and Problem Solving

Jack and Dora are using the following formula to work out what they should charge for four hours of cleaning.

$$\text{Cost in pounds} = 20 + 10 \times \text{number of hours}$$

Jack thinks they should charge £60

Dora thinks they should charge £120

Who do you agree with?
Why?

Jack is correct as multiplication should be performed first following the order of operations.

Dora has not used the order of operations – she has added 20 and 10 and then multiplied 30 by 4

The rule for making scones is use 4 times as much flour (f) as butter (b).

Which is the correct formula to represent this?

A

$$f = \frac{b}{4}$$

B

$$f = 4b$$

C

$$f = b + 4$$

D

$$4f = b$$

Explain why the others are incorrect.

B is correct.

A shows the amount of flour is a quarter of the amount of butter.

C shows the amount of flour is 4 more than butter.

D shows butter is 4 times the amount of flour.