Find a Rule – One Step

7a. If Mika has -£6.70 in his account, and Yasmin has more than -£17.50, but less than Mika, how much money could she have in her account?

What function could be used to show this?

Input:	Function:	Output:
-£6.70	?	?

Find 3 possible solutions.

GD

PS

Find a Rule – One Step

7b. If Davina has used 0.45kg of a bag of flour and Jackson has used less than 0.55kg, but more than Davina, how much flour could he have used?

What function could be used to show this?

Input:	Function:	Output:
0.45kg	?	?

Find 3 possible solutions.

GD

PS

8a. If a 2.8L bottle of pop is shared between 20 cups, what would the output per cup be?

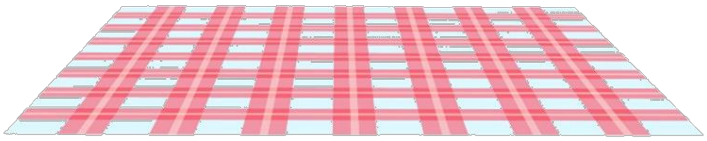


Explain your reasoning.

GD

R

8b. If $\frac{5}{8}$ of a 10m carpet is cut into 10 strips, what would the output of each strip of carpet be?



Explain your reasoning.

GD

R

9a. Four of the cards are inputs or outputs of the function machine below.

Circle the odd one out.

21	48	12	28	36

Input:	Function:	Output:
?	x 0.75	?

Explain your reasoning.

GD

R

9b. Four of the cards are inputs or outputs of the function machine below.

Circle the odd one out.

-18.3	-16.6	3.7	-5.4	16.6

Input:	Function:	Output:
?	+ 12.9	?

Explain your reasoning.

GD

R

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Reasoning and Problem Solving
Find a Rule – One Step

Developing

1a. Various answers, for example:
– 10, 22 stickers; – 9, 23 stickers; – 8, 24 stickers.

2a. There are 23 horses. Various answers, for example: This is because there are 10 Spartans; if the function for the number of horses is the number of Spartans + 13, then the calculation to work this out is 10 + 13 = 23.

3a. 5 is the odd one out because 6 + 8 = 14 and 8 + 8 = 16. 5 + 8 = 13, but there is no number card for 13 (to match 5).

Expected

4a. Various answers, for example:
– 6, 21 marbles; – 5, 22 marbles; – 4, 23 marbles.

5a. There are 63 wizards. Various answers, for example: This is because there are 9 ninjas; if the function for the number of wizards is the number of ninjas x 7, then the calculation to work this out is 9 x 7 = 63.

6a. 54 is the odd one out because 42 ÷ 6 = 7 and 24.6 ÷ 6 = 4.1. 54 ÷ 6 = 9, but there is no number card for 9 (to match 54).

Greater Depth

7a. Various answers, for example:
– £6, -£12.70; – £7, -£13.70; – £8, -£14.70.

8a. Various answers, for example:
The output per cup would be 0.14L or 140ml. This is because the function for the calculation would be ÷ 20 (because there are 20 cups), so the calculation to work this out is 2.8 ÷ 20 = 0.14.

9a. 12 is the odd one out because 28 x 0.75 = 21 and 48 x 0.75 = 36. 12 x 0.75 = 9, but there is no number card for 9 (to match 12).

Reasoning and Problem Solving
Find a Rule – One Step

Developing

1b. Various answers, for example:
+ 5, 30 berries; + 6, 31 berries; + 7, 32 berries.

2b. There are 6 dragons. Various answers, for example: This is because there are 15 knights; if the function for the number of dragons is the number of knights – 9, then the calculation to work this out is 15 – 9 = 6.

3b. 10 is the odd one out because 15 – 6 = 9 and 7 – 6 = 1. 10 – 6 = 4, but there is no number card for 4 (to match 10).

Expected

4b. Various answers, for example:
+ 10, 28 sweets; + 9, 27 sweets; + 8, 26 sweets.

5b. There would be 4 orcs. Various answers, for example: This is because there are 12 barbarians; if the function for the number of orcs is the number of barbarians ÷ 3, then the calculation to work this out is 12 ÷ 3 = 4.

6b. 8 is the odd one out because 5.2 x 4 = 20.8 and 9 x 4 = 36. 8 x 4 = 32, but there is no number card for 32 (to match 8).

Greater Depth

7b. Various answers, for example:
+ 0.01kg, 0.46kg of flour; + 0.02kg, 0.47kg of flour; + 0.03kg, 0.48kg of flour.

8b. Various answers, for example:
The output of each strip of carpet would be 62.5cm or 625mm. This is because $\frac{5}{8}$ of 10m is 6.25m or 625cm. This number is then ÷ 10 (because it is cut into 10 strips) which is the function of the calculation; the final calculation to work this out is 6.25 ÷ 10 = 0.625.

9b. -16.6 is the odd one out because -18.3 + 12.9 = -5.4 and 3.7 + 12.9 = 16.6. -16.6 + 12.9 = -3.7, but there is no number card for -3.7 (to match -16.6).

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