






1) Rhys uses cubes to write expressions for function machines. Draw the missing cubes and write the missing inputs and expressions. The first one has been completed for you.


a)

| | | |
|---|---------------|--|
| Input | $+ 3$ | Output |
|  | \rightarrow |  |
| y | \rightarrow | $y + 3$ |


b)

| | | |
|---|---------------|--------|
| Input | $+ 5$ | Output |
|  | \rightarrow | |
| | \rightarrow | |


c)

| | | |
|--|---------------|--------|
| Input | $\times 3$ | Output |
|  | \rightarrow | |
| | \rightarrow | |


d)

| | | |
|---|---------------|--------|
| Input | $\times 5$ | Output |
|  | \rightarrow | |
| | \rightarrow | |

e)

| | | |
|---|-----------------|----------|
| Input | $\times 3, + 1$ | Output |
|  | \rightarrow | |
| y | \rightarrow | $3y + 1$ |

f)

| | | |
|---|-----------------|--------|
| Input | $+ 5, \times 2$ | Output |
|  | \rightarrow | |
| | \rightarrow | |

- 1) Four children write expressions to describe their pocket money for the week. Are their expressions correct or incorrect? If an expression is incorrect, write the correct expression.



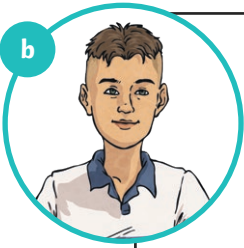
a



I spent half my pocket money going to the cinema. Then, I washed the car and earned £7.

$$y \div 2 + 7$$

b



I cleaned my bedroom and earned £4 to add to my pocket money. Then, my mum tripled my total pocket money for getting a great school report!

$$3(y + 5)$$

c



I spent £3 of my pocket money on a magazine. Then, I completed my paper round and earned £10.

$$10(y - 3)$$

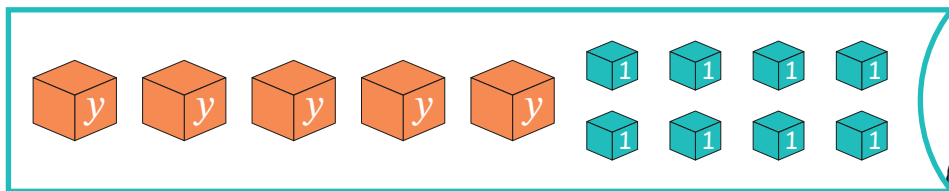
d



My grandpa gave me £12 to add to my pocket money. Then, I gave half of all my pocket money away to charity.

$$y + 12 - 2$$

1) Harry is using the following cubes to form expressions.



Using any amount of the cubes, how many different expressions can you write that use addition and/or multiplication?

A large empty rectangular box for writing answers.