

1 General Formula for n 'th Item

a. Definitions

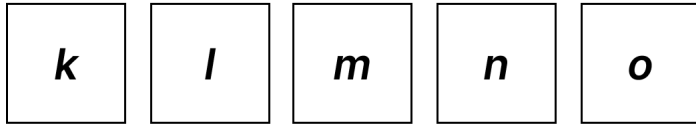
(n in the formula doesn't represent the fourth item. it is the index.)

$k = \text{first item}$

$l = \text{second item}$

$n = \text{index}$

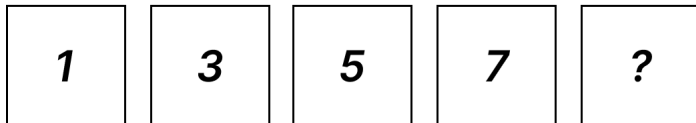
b. Formula



According to the definitions above, this is the formula for any item of the set in the image.

$$(l - k)n + 2k - l$$

c. Proof Of Formula



Let's apply the formula given to find $?$.

$$(l - k)n + 2k - l$$

$$(3 - 1)n + 2 \cdot 1 - 3$$

$$2n + 2 - 3$$

$$2n - 1$$

$$2 \cdot 5 - 1$$

$$10 - 1$$

$$9$$

We find 9 as the result of resolving the formula. The set of numbers in the image are the odd numbers. And in fact, the fifth odd number is 9. So we have successfully proven the generalized formula for any item in a set of numbers.

2 General Formula for n

Let's say the sol. of the formula is s . To isolate n and find its value; we should let s be equal to the formula.

$$(l - k)n + 2k - l = s$$

Lets solve for s .

$$(l - k)n + 2k - l = s$$

$$(l - k)n = s - 2k + l$$

$$n = \frac{s - 2k + l}{(l - k)}$$

Since our formula was proven to be true, the value of n is true too.