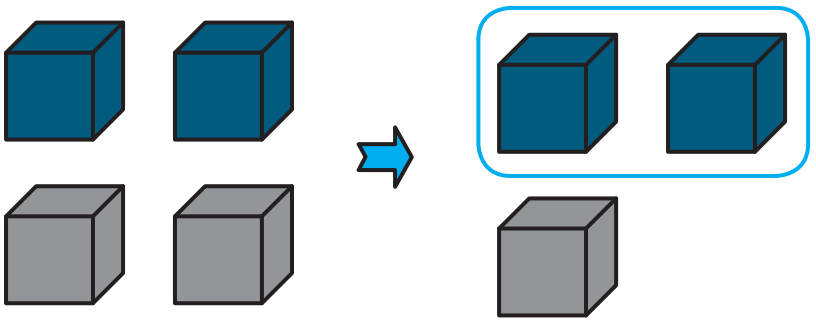
Something Never Changes

SNC Introduction



In **Something Never Changes (SNC)**, the aim is to identify the quantities that do not change in value throughout the question. It can be one of the subjects, the total or the difference. We usually use ratio to compare them and make the quantity that does not change to be the same throughout.

Tip: Examples of problems involving totals that do not change are giving and receiving among one another while those involving differences that do not change are usually age-type questions as well as questions where subjects receive the same benefits/ penalties.

SNC Example

The ratio of A's cookies to B's cookies was 1 : 2 at first.
After A ate 5 cookies, the ratio became 1 : 4.
How many cookies did A have at first?

At first	In the end
A : B	A : B
1 : 2	1 : 4

B never changed.

1 : 2	1 : 4
2 : 4	

(1 : 2 → 2 : 4: ×2, ×2)

A (ate) → 2 – 1 = 1 unit
→ 5 cookies
1 unit → 5 cookies
2 units → 2 × 5 = 10 cookies
A (at first) → 10 cookies

Ans: 10 cookies

Adapted:
Score A* in Singapore Mathematics Problem Sums Level 6 (Standard Edition)

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Question 1

A is j years old. B is 4 times as old as A. How long will B be twice as old as A in terms of j?

Ans: _____

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Question 2

The ratio of A's cookies to B's cookies was 7 : 4. After A gave 200 cookies to B, the ratio became 5 : 6. What fraction of her cookies did A give to B?

Ans: _____

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Question 1

Now			Future		
A	:	B	A	:	B
1	:	4	1	:	2

Difference never changes.

A	:	B	Difference	A	:	B	Difference
1	:	4	3	1	:	2	1
				3	:	6	3

(1 : 2 → ×3; 3 : 6 → ×3; 1 → ×3)

A (now) → 1 unit
→ j years
Time → 6 – 4 = 2 units
→ 2 × j = 2j years

Ans: 2j years

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Question 2

At first			In the end		
A	:	B	A	:	B
7	:	4	5	:	6

Total never changed.

A	:	B	Total	A	:	B	Total
7	:	4	11	5	:	6	11

A (gave) → 7 – 5 = 2 units
→ 200 cookies
2 units → 200 cookies
1 unit → 200 ÷ 2 = 100 cookies
7 units → 7 × 100 = 700 cookies
A (at first) → 700 cookies
Fraction (A gave) → $\frac{200}{700} = \frac{2}{7}$

Ans: $\frac{2}{7}$

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