

Unit Transfer Method

Primary 5

Before & After

Lesson 5: Differentiate Before & After

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Lesson 5: Revision-Before & After Scenarios

How to Identify?

There are four basic scenarios where the Before and After may be applied.

SINGLE UNCHANGED

	A	B
Before	10	35
Change	-3	
After	7	35

→

At least one of the items remain unchanged.

TOTAL UNCHANGED

	A	B	Total
Before	10	35	45
Change	-3	+3	
After	7	38	45

→

same no., opposite signs
∴ Total Unchanged

DIFFERENCE UNCHANGED

	A	B	Diff
Before	10	35	25
Change	-3	-3	
After	7	32	25

→

same no., same signs
∴ Diff Unchanged

ALL CHANGING

	A	B	T	D
Before	10	35	45	25
Change	-3	+5		
After	7	40	47	33

→

Different numbers
∴ All Change

GUIDED EXAMPLE 1

- B [There were $\frac{3}{4}$ as many students in Camp A as in Camp B.] $|\frac{3}{4} = \frac{7}{4}$
 C [After 25 pupils joined Camp B,]
 A [there were now $1\frac{3}{4}$ times as many students in Camp B as Camp A.]

Find the number of students in Camp A.

	Camp A	camp B
B	3×4 $12u$	4×4 $16u$
C		+25
A	4×3 $12u$	7×3 $21u$

Camp A unchanged

$$21u - 16u = 25$$

$$5u = 25$$

$$1u = 25 \div 5$$

$$= 5$$

$$12u = 12 \times 5$$

$$= 60$$

Ans : 60

GUIDED EXAMPLE 2

There were some apples and oranges in a carton.

- B $\left[\frac{1}{4} \text{ of the fruits were apples. } \right]$
 - C $\left[\text{When 40 apples were added to the carton,} \right]$
 - A $\left[\text{the ratio of the number of apples to the total number of fruits became } 3 : 8. \right]$
- Find the total number of fruits at the end.

	Apples	Oranges	Total
B	1×5 $5u$	3×5 $15u$	4×5 $20u$
C	+40		+40
A	3×3 $9u$	5×3 $15u$	8×3 $24u$

Oranges unchanged

$$24u - 20u = 40$$

$$4u = 40$$

$$1u = 40 \div 4$$

$$= 10$$

$$24u = 24 \times 10$$

$$= 240$$

Ans : 240

GUIDED EXAMPLE 3

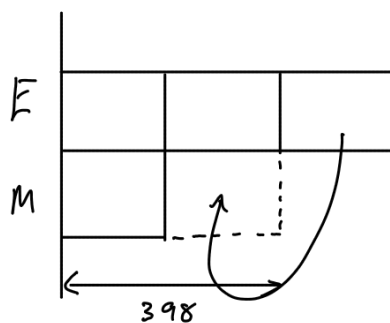
- B [Eugene has thrice as many marbles as Mark.]
 C [How many marbles must Eugene give to Mark]
 A [so that each of them will have 398 marbles?]

UTM	Eugene	Mark	Total
B	3×199 597	1×199 199	4×199 796
C	-?	+?	
A	398	398	796

Total Unchanged

$$597 - 398 = 199$$

Model



$$398 \div 2 = 199$$

Ans: 199

GUIDED EXAMPLE 4

- B [The ratio of Kevin's cards to John's cards is 5 : 7.]
 C [Kevin gave 20 cards to John.]
 A [As a result, Kevin has $\frac{1}{2}$ as many cards as John.]
 How many cards did they have altogether?

	Kevin	John	Total
B	5 $5u$ ↓	7 $7u$ ↓	12 $12u$ ↓
C	-20	+20	
A	1×4 $4u$ ↓	2×4 $8u$ ↓	3×4 $12u$ ↓

Total Unchanged

$$5u - 4u = 20$$

$$1u = 20$$

$$12u = 12 \times 20$$

$$= 240$$

Ans : 240

GUIDED EXAMPLE 5

- B [There were 310 adults and 870 children at a party.]
 C [One hour later, equal number of adults and children left the party.]
 A [As a result, there was 20% as many adults as children remaining.]
- How many people are there remaining in the party?
- $20\% = \frac{20}{100} = \frac{1}{5}$

	Adults	Children	Diff
B	310	870	560
C	-?	-?	
A	1 × 140 140	5 × 140 700	4 × 140 560

Diff unchanged

$$700 + 140 = 840$$

Ans : 840

GUIDED EXAMPLE 6

[Uncle John is 24 years older than his nephew.]
 [His age will be 3 times his nephew's in 6 years' time.]
 Find the sum of their present ages.

* Age Diff always remains unchanged.

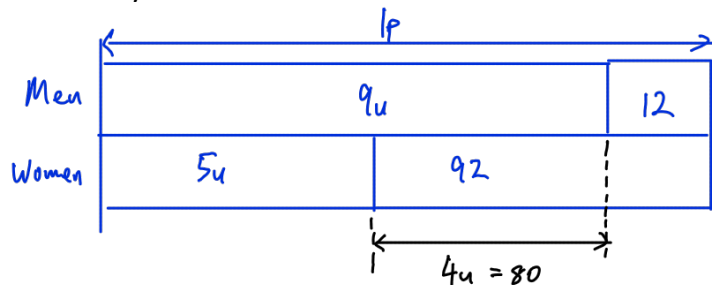
	John	Nephew	Diff
B	30	6	24
[C]	+6	+6	
A	3 × 12 36	1 × 12 12	2 × 12 24

$30 + 6 = 36$

Ans : 36 years

GUIDED EXAMPLE 7 * Same start or same end → can draw model immediately *

- B [The ratio of the number of men to the number of women in an auditorium was 9 : 5.]
 C [After another 92 women and 12 men entered the auditorium,]
 A [the number of men is the same as the number of women in the auditorium.]
- How many men are there in the auditorium now?



$$9u - 5u = 92 - 12$$

$$4u = 80$$

$$1u = 80 \div 4$$

$$= 20$$

$$9u + 12 = 9 \times 20 + 12$$

$$= 192$$

Ans : 192

BUILD YOUR UNDERSTANDING

1. **B** [There was a total of 500 red and blue beads in a box.]
B [The ratio of the number of red beads to the number of blue beads was 2 : 3.]
C [How many red beads must be added to the box so that the ratio of the number of red beads to the number of blue beads became 2 : 1?] **A**

	Red	Blue	Total
Before	2×100 200	3×100 300	5×100 500
Change	+?		+?
After	2×300 600	1×300 300	3×300 900

Blue Unchanged

$600 - 200 = 400$ Ans : 400

2. B [Mrs. Lau had $0.6 \frac{3}{5}$ times as many peaches 3 as mangoes 5 .]
 C [After selling 96 mangoes,]
 A [the number of mangoes became $0.6 \frac{3}{5}$ times the number of peaches 5 .]
 Find the number of peaches Mrs. Lau had.

$$0.6 = \frac{6}{10} = \frac{3}{5}$$

	Peaches	Mangoes
B	3×5 $15u$ ↙	5×5 $25u$ ↙
[C		-96]
A	5×3 $15u$ ↙ ↙	3×3 $9u$ ↙ -

peaches unchanged

$$25u - 9u = 96$$

$$16u = 96$$

$$1u = 96 \div 16$$

$$= 6$$

$$15u = 15 \times 6$$

$$= 90$$

Ans : 90

3. B [Davidson has $\frac{2}{3}$ as many marbles as Harvey.]
 C [Harvey gave 20 marbles to Davidson and]
 A [they now have an equal number of marbles.]

How many marbles did the two boys have altogether?

	Davidson	Harvey	Total
B	2×2 4u	3×2 6u	5×2 10u
C	+20	-20	
A	1×5 5u	1×5 5u	2×5 10u

Total Unchanged

$$5u - 4u = 20$$

$$1u = 20$$

$$10u = 10 \times 20$$

$$= 200$$

Ans : 200

4. ¹⁶
 B [The ratio of the number of pupils in Class A to the number of pupils in Class B was 16 : 11.]
 C [When 8 pupils from Class A were transferred to Class B,]
 [the ratio of the number of pupils in Class A to the number of pupils in Class B became 4 : 5.] ⁴ A
 How many pupils were there in Class B at first?

	Class A	Class B	Total
B	16 16u	11 11u	27 27u
[C]	-8	+8	
A	4 × 3 12u	5 × 3 15u	9 × 3 27u
Total Unchanged			

$$16u - 12u = 8$$

$$4u = 8$$

$$1u = 8 \div 4$$

$$= 2$$

$$11u = 11 \times 2$$

$$= 22$$

Ans : 22

5. **B** [Joan had \$1382 and her brother had \$428.]
C [After their father gave each of them an equal amount of money,]
A [Joan now has twice as much money as her brother.]
 How much did their father give each of them?

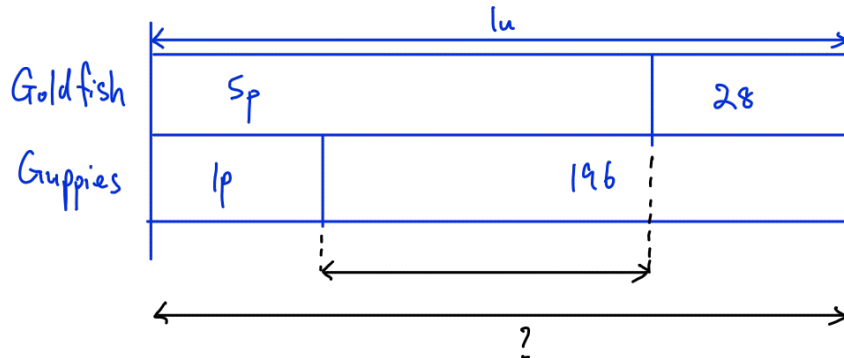
	Joan	Brother	Diff
B	1382	428	954
C	+? 	+? 	
A	2 × 954 1908 ↙	1 × 954 954 ↙	1 × 954 954 ↙

Diff Unchanged

$$1908 - 1382 = 526$$

Ans : \$526

6. B [Melvin had an ^{lu}equal number of goldfish and guppies in his pond.]
C [After 28 goldfish and 196 guppies had been sold,]
A [the number of guppies is now ^{20%}20% that of the number of goldfish.]
 How many guppies did he have at first?



$$5p - 1p = 196 - 28$$

$$4p = 168$$

$$1p = 168 \div 4$$

$$= 42$$

$$1p + 196 = 42 + 196$$

$$= 238$$

Ans : 238

7. Jenny and Chris went to a sale at Tongs Department Store.

B $\left\{ \begin{array}{l} \text{Chris had 3 times as much money as Jenny.} \end{array} \right.$

C $\left\{ \begin{array}{l} \text{After Jenny spent \$9 and Chris spent \$55,} \end{array} \right.$

A $\left\{ \begin{array}{l} \text{Jenny had 5 times as much money as Chris.} \end{array} \right.$

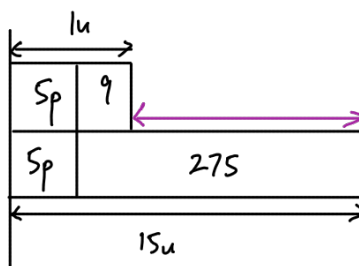
How much money did Jenny have at first?

	Chris	Jenny
B	$3u$	u
C	-55	-9
A	$1p$	$5p$

$3u - 55 = 1p$ (x5)
 $\checkmark [1u - 9 = 5p]$

To find u , make parts the same.

$[15u - 275 = 5p]$



$15u - 1u = 275 - 9$

$14u = 266$

$1u = 266 \div 14$

$= 19$

Ans : \$19

CHALLENGE YOURSELF

Harry had \$400 less than Linden at first.

When they both spent their money to buy the same wallet,

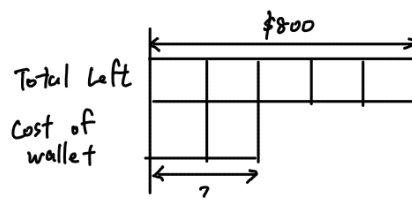
the ratio of Linden's money to Harry's money became 3 : 1.

Given that the total amount of money they had left is 2.5 times the cost of the wallet, find the cost of the wallet.

	Harry	Linden	Diff
B			400
[C	-?	-?	
A	3×200 600	1×200 200	2×200 400

Diff unchanged

$$\begin{aligned} \text{Total left} &= 600 + 200 \\ &= 800 \end{aligned}$$



$$800 \div 5 \times 2 = 320$$

Ans : \$320