

Unit Transfer Method

Primary 5

Lesson 10: Revision

www.mathsheuristics.com
enquiry@mathsheuristics.com
www.facebook.com/groups/mathsheuristics

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Lesson 10: Revision (II)

- L6 ■ Excess and Shortage Scenarios
- L7 ■ Repeated Identity Scenarios
- L8 ■ Equal Scenarios
- L9 ■ Two Variables Scenarios

GUIDED EXAMPLE 1

Robert had a sum of money.
 Case 1 Robert wanted to buy 12 erasers but he was ^{12u}short of \$0.80.
 Case 2 He decided to buy 8 erasers instead and had ^{8u}\$1.60 left.
 How much money did Robert have?

1u → cost of 1 eraser

	want to spend	Excess/Shortage	Total \$
Case 1	12u	-0.80	12u - 0.80
Case 2	8u	+1.60	8u + 1.60

$$12u - 0.80 = 8u + 1.60$$

$$12u - 8u = 1.60 + 0.80$$

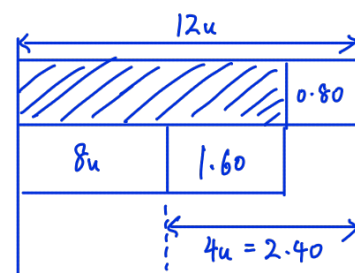
$$4u = 2.40$$

$$1u = 2.40 \div 4$$

$$= 0.60$$

$$12u - 0.80 = 12 \times 0.60 - 0.80$$

$$= 6.40$$



Ans : \$6.40

GUIDED EXAMPLE 2

The ratio of Gary's allowance to Eric's allowance is 3 : 1.

The ratio of Alex's allowance to Gary's allowance is 5 : 2.

(If Alex has \$52 more than Eric.) Diff

find the total allowance of the three boys.

(Repeated) G	E	A	A - E	Total
3 × 2	1 × 2			
2 × 3		5 × 3		
6u	2u	15u	13u	<u>23u</u>

$$13u = 52$$

$$1u = 52 \div 13$$

$$= 4$$

$$23u = 23 \times 4$$

$$= 92$$

Ans : \$92

GUIDED EXAMPLE 3

Andy, Benson and Calvin shared the cost of the dinner.

Andy paid for $\frac{1}{3}$ of the bill.

The remainder was shared between Benson and Calvin in the ratio of 2 : 3.

- a) What is the ratio of the amount of money paid by Andy to Benson to Calvin?
- b) The dinner cost \$45. How much more money did Calvin pay than Benson?

A	A+B+C Total	(Repeated) B+C
1 × 5 ↓ 5u	3 × 5 ↓ 15u	2 × 5 ↓ 10u
B	C	B+C
2 × 2 ↓ 4u	3 × 2 ↓ 6u	5 × 2 ↓ 10u

a) 5 : 4 : 6

b) $15u = 45$
 $1u = 45 \div 15$
 $= 3$
 $6u - 4u = 2u$
 $= 2 \times 3$
 $= 6$

Ans : a) 5 : 4 : 6
 b) \$6

GUIDED EXAMPLE 4

Zen and Harry each have some savings

Given that $\frac{4}{9}$ of Zen's savings is equal to $\frac{3}{4}$ of Harry's savings,

and $\left[\begin{array}{l} \text{Total} \\ \text{Total} \end{array} \right]$ their total savings is \$1935, find how much is Zen's savings.

	(Equal) compared portion	Total
Zen	4×3 $12u$ ↘	9×3 $27u$ ↘
Harry	3×4 $12u$ ↘	4×4 $16u$ ↘
Total		$43u$

$$43u = 1935$$

$$1u = 1935 \div 43$$

$$= 45$$

$$27u = 27 \times 45$$

$$= 1215$$

$$\text{Ans} : \underline{\underline{\$1215}}$$

GUIDED EXAMPLE 5

[Adeline spent \$1485 on 9 identical handbags and 3 identical pairs of shoes.]

[Sherlyn spent \$618 on 2 such handbags and 6 such pairs of shoes.]

What was the cost of a pair of shoes?

$$9B + 3S = 1485 \quad (\times 2)$$

$$2B + 6S = 618 \quad (\times 9)$$

To find S , make B the same.

$$[18B + 6S = 2970]$$

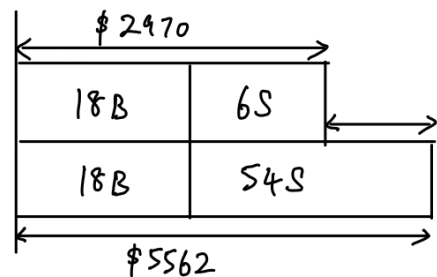
$$[18B + 54S = 5562]$$

$$54S - 6S = 5562 - 2970$$

$$48S = 2592$$

$$1S = 2592 \div 48$$

$$= 54$$



Ans : \$54

GUIDED EXAMPLE 6

Zave and Jackson earn a total of \$9850 every month. Total

Jackson spends $\frac{8}{9}$ of his salary and saves the rest,

while Zave spends $\frac{4}{5}$ of his salary and saves the rest.

Altogether, both of them save \$1550 every month. saved

How much money does Zave earn every month?

	Total	Spent	Saved
Jackson	$9u$	$8u$	$1u$
Zave	$5p$	$4p$	$1p$

$$\text{Total : } [9u + 5p = 9850]$$

$$\text{Saved : } 1u + 1p = 1550 \quad (\times 9)$$

To find p, make u the same.

$$[9u + 9p = 13950]$$

$$9p - 5p = 13950 - 9850$$

$$4p = 4100$$

$$1p = 4100 \div 4$$

$$= 1025$$

$$5p = 5 \times 1025$$

$$= 5125$$

$$\text{Ans : } \underline{\underline{\$5125}}$$

BUILD YOUR UNDERSTANDING

1. Winnie bought some roses for her teachers during Teachers' Day.
 Case 1 If she gives each teacher 3 roses, she will have 16 roses left.

Case 2 If she gives each teacher 5 roses, she will need another 4 roses.

- a) How many teachers are there?
- b) How many roses did Winnie buy?

$1u \rightarrow$ no. teachers

	want to give	Excess/ Shortage	Total roses
Case 1	$3u$	$+16$	$3u + 16$ ^(b)
Case 2	$5u$	-4	$5u - 4$ ^(b)

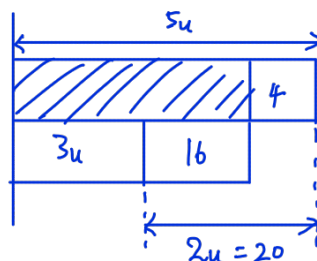
$$3u + 16 = 5u - 4$$

$$5u - 3u = 16 + 4$$

$$2u = 20$$

a) $1u = 20 \div 2$
 $= 10$

b) $3u + 16 = 3 \times 10 + 16$
 $= 46$



Ans : a) 10
 b) 46

2. John had some coins. He wants to arrange them in a certain number of stacks.
 Case 1 If he puts the coins in stacks of 30, he would have a remainder of 160 coins.
 Case 2 If he puts the coins in stacks of 50, he would be short of 60 coins. ⁺¹⁶⁰
 How many coins does John have? $1u \rightarrow$ no. stacks

	want to arrange	Excess/Shortage	Total no. coins
Case 1	$30u$	$+160$	$30u + 160$
Case 2	$50u$	-60	$50u - 60$

$$50u - 60 = 30u + 160$$

$$50u - 30u = 160 + 60$$

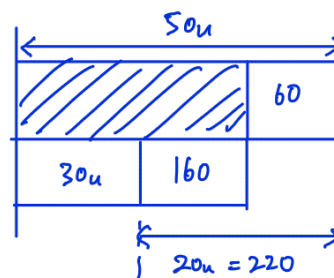
$$20u = 220$$

$$1u = 220 \div 20$$

$$= 11$$

$$30u + 160 = 30 \times 11 + 160$$

$$= 490$$



Ans : 490

3. Nelson has $\frac{3}{8}$ as many paper clips as Leon.
 Dickson has $\frac{5}{9}$ as many paper clips as Leon.
 (If the three of them have a total of 278 paper clips,) Total
 how many paper clips does Leon have?

(Repeated)			
N	L	D	Total
3×9	8×9		
	9×8	5×8	
$27u$	$72u$ //	$40u$	$139u$

$$139u = 278$$

$$u = 278 \div 139$$

$$= 2$$

$$72u = 72 \times 2$$

$$= 144$$

Ans : 144

4. Mrs Yan had some beads.
 The number of red beads to the number of blue beads was 2 : 3.
 $\frac{1}{7}$ of the total number of beads were green beads.
What fraction of Mrs Yan's beads were blue beads?

R	B	(Repeated) R+B
2 x 6 12u	3 x 6 18u	5 x 6 30u
G	Total	R+B
1 x 5 5u	7 x 5 35u	6 x 5 30u

Required fraction = $\frac{18}{35}$

Ans : $\frac{18}{35}$

5. Larry saved \$261 more than Sean.
 $\frac{2}{9}$ of Larry's saving is equal to $\frac{5}{8}$ of Sean's savings.
 How much did Larry save?

	(Equal) compared portion	Total
Larry	2 x 5 10u ↙	9 x 5 45u ↘ 45u
Sean	5 x 2 10u ↙	8 x 2 16u ↘
L - S		29u

$$29u = 261$$

$$1u = 261 \div 29$$

$$= 9$$

$$45u = 45 \times 9$$

$$= 405$$

Ans : \$405

6. (1 kg of beef and 1 kg of mutton costs \$12.)
(Andy bought 1 kg of beef and 5 kg of mutton for \$38.)
How much does 1 kg of mutton cost?

$$\begin{aligned} [1B + 1M &= 12] \\ [1B + 5M &= 38] \end{aligned}$$

$$5M - 1M = 38 - 12$$

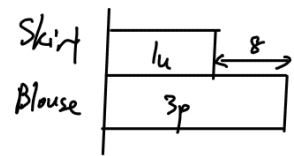
$$4M = 26$$

$$M = 26 \div 4$$

$$= 6.50$$

Ans: \$6.50

7. (Mary and Tina both had \$256 altogether at first.) ^{Total}
 Mary spent $\frac{1}{3}$ of her money on a skirt.
 Tina spent 60% of her money on a blouse.
 (Given that the blouse cost \$8 more than the skirt,)
 find the amount of money Mary had at first.



	Total	Spent	Remain
(Skirt) Mary	$3u$ $9p - 24$	$1u$ $3p - 8$	$2u$
(Blouse) Tina	$5p$	$3p$	$2p$
Total	$14p - 24$		

$$1u = 3p - 8 \quad (\times 3)$$

$$3u = 9p - 24$$

$$14p - 24 = 256$$

$$14p = 256 + 24$$

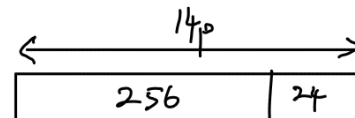
$$= 280$$

$$1p = 280 \div 14$$

$$= 20$$

$$9p - 24 = 9 \times 20 - 24$$

$$= 156$$



Ans : \$156

CHALLENGE YOURSELF

With \$108, Joe can buy either 12 notebooks and 10 pencil cases,
or 9 notebooks and 12 pencil cases.

Find the cost of a pencil case.

$$12N + 10P = 108 \quad (\times 3)$$

$$9N + 12P = 108 \quad (\times 4)$$

To find P, make N the same

$$\begin{bmatrix} 36N + 30P = 324 \end{bmatrix}$$

$$\begin{bmatrix} 36N + 48P = 432 \end{bmatrix}$$

$$48P - 30P = 432 - 324$$

$$18P = 108$$

$$1P = 108 \div 18$$

$$= 6$$

Ans : \$6

CHALLENGE YOURSELF

Valerie, Jake and Zachery shared the cost of a present.

- $\left[\frac{3}{5} \text{ of Zachery's share was equal to } \frac{1}{3} \text{ the total of Jake's and Valerie's share.} \right]$
 - $\left[\frac{2}{3} \text{ of Jake's share was equal to } \frac{1}{3} \text{ the total of Zachery's and Valerie's share.} \right]$
- Valerie paid \$30 less than Zachery. How much did the present cost?

① Analyse compared portions

	(Equal) Compared portion	Total
Z	3	5
J+V	$1 \times 3 \downarrow$ 3	$3 \times 3 \downarrow$ 9

	Compared portion	Total
J	2	3
Z+V	$1 \times 2 \downarrow$ 2	$3 \times 2 \downarrow$ 6

② Compare Repeated Identity - Total

Z	J+V	(Repeated) J+V+Z
$5 \times 3 \downarrow$ 15u	$9 \times 3 \downarrow$ 27u	$14 \times 3 \downarrow$ 42u
J	Z+V	J+V+Z
$1 \times 14 \downarrow$ 14u	$2 \times 14 \downarrow$ 28u	$3 \times 14 \downarrow$ 42u

Reduce to simplest form

③ Find 1u

Find Valerie's no. units

$$27u - 14u = 13u$$

Compare diff between V & Z

$$15u - 13u = 30$$

$$2u = 30$$

$$1u = 30 \div 2$$

$$= 15$$

$$42u = 42 \times 15$$

$$= 630$$

Ans: \$630

CHALLENGE YOURSELF

Darrel and Patrick sold a total of 210 carnival tickets.
 Patrick and Jim sold a total of 286 carnival tickets.
 Jim sold 5 times as many carnival tickets as Darrel.
 How many tickets did Patrick sell?

$$\begin{cases} p + l_u = 210 \\ p + 5u = 286 \end{cases}$$

$$5u - l_u = 286 - 210$$

$$4u = 76$$

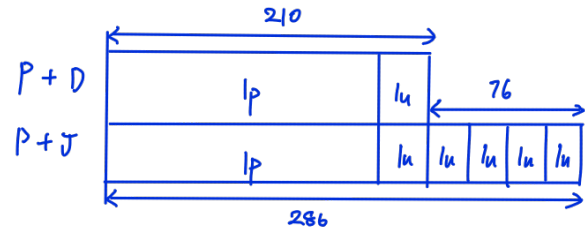
$$l_u = 76 \div 4$$

$$= 19$$

$$p = 210 - 19$$

$$= 191$$

Model :



Ans : 191

CHALLENGE YOURSELF

David and Bernard had \$3444.

[If David spent $\frac{3}{8}$ of his money and Bernard spent $\frac{3}{4}$ of his money,]

they would have the same amount of money left.

How much money did Bernard have?

	Total	Spent	(same) Remain
David	8u	3u	5u
Bernard	4 x 5 20u //	3 x 5 15u	1 x 5 5u
Total	28u		

comparing Total,

$$28u = 3444$$

$$u = 3444 \div 28$$

$$= 123$$

$$20u = 20 \times 123$$

$$= 2460$$

Ans : \$2460