

Higher Order Thinking Skills

Primary 5

Lesson 3:
Unit Transfer Method (III)

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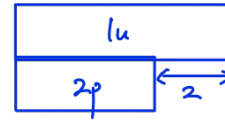
LESSON 3 Before and After with Comparison

GUIDED EXAMPLE 1

The sum of two numbers is 145.

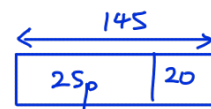
$\frac{1}{10}$ 10% of the first number is 2 more than $\frac{2}{5}$ of the second number.

Find the two numbers.



	Compared portion	Total
1st no.	1u 2p+2	10u 20p+20 → 120
2nd no.	2p	5p 25
Total		25p+20 145

$$\begin{aligned}
 1u &= 2p+2 \\
 10u &= 20p+20 \\
 25p+20 &= 145 \\
 25p &= 145-20 \\
 &= 125 \\
 p &= 125 \div 25 \\
 &= 5 \\
 5p &= 5 \times 5 \\
 &= 25 \\
 145-25 &= 120
 \end{aligned}$$



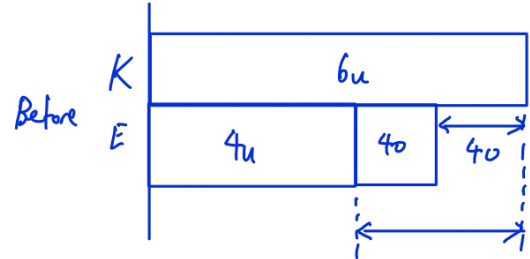
Ans: 120, 25

GUIDED EXAMPLE 2

B (Kelly had \$40 more than Eileen.)
 B, C, A Kelly donated $\frac{1}{6}$ of her money while Eileen donated $\frac{1}{4}$ of her money.

A (Given that Kelly donated \$10 less than Eileen,] \rightarrow E donated \$10 more than K.
 find the total amount of money the children had left.

	Kelly	Eileen	Total
Total	$6u$	$4p$ $4u + 40$	
Donated	$1u$	$1p$ $1u + 10$	
Left	$5u$	$3p$ $3u + 30$	$8u + 30$



$$\begin{aligned}
 6u - 4u &= 40 + 40 \\
 2u &= 80 \\
 1u &= 80 \div 2 \\
 &= 40 \\
 8u + 30 &= 8 \times 40 + 30 \\
 &= 350
 \end{aligned}$$

Ans : \$350

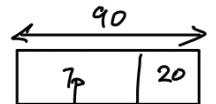
GUIDED EXAMPLE 3

Jianwei had 100 more guppies than angelfish.
 He sold $\frac{4}{5}$ of his guppies and $\frac{1}{2}$ of the angelfish.
 There were 90 fishes left.
 Find the total number of fish he had at first.



	Guppies	Angel fish	Total
Before	5u 10p + 100	2p 10p	20p + 100
Sold	4u 8p + 80	1p 5p	
Left	1u 2p + 20	1p 5p	7p + 20

$$\frac{4}{5} = \frac{8}{10}, \quad \frac{1}{2} = \frac{5}{10}$$



$$7p + 20 = 90$$

$$7p = 90 - 20$$

$$= 70$$

$$1p = 70 \div 7$$

$$= 10$$

$$20p + 100 = 20 \times 10 + 100$$

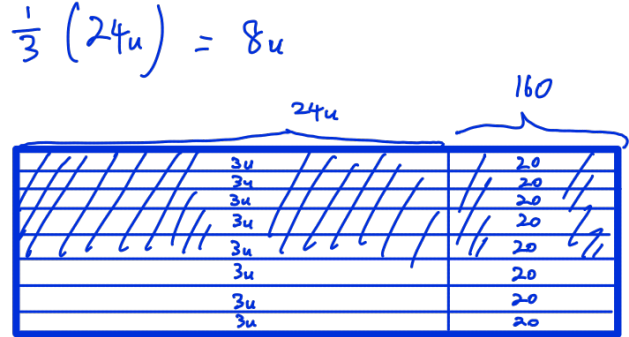
$$= 300$$

Ans : 300

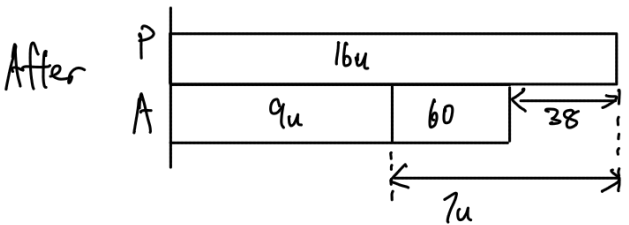
GUIDED EXAMPLE 4

- B [Mr Lee had 160 fewer pears than apples.] → 160 more apples than pears
 B, C, A [He sold $\frac{1}{3}$ of the pears and $\frac{5}{8}$ of the apples.] 8, 16, 24
 → A [He had 38 fewer apples than pears left.] 3, ... 24
 Find the total number of apples and pears that Mr Lee had at first.

	Pears	Apples	Total
B	$24u$	$24u + 160$	$48u + 160$ =
C	$-8u$	$-15u - 100$	
A	$16u$	$9u + 60$	



$\frac{5}{8}(24u + 160) = 15u + 100$



$$16u - 9u = 60 + 38$$

$$7u = 98$$

$$1u = 98 \div 7$$

$$= 14$$

$$48u + 160 = 48 \times 14 + 160$$

$$= 832$$

Ans : 832

GUIDED EXAMPLE 5

An enrichment workshop was held over a period of two days.

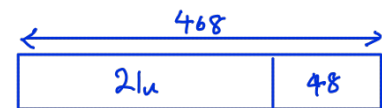
- B (On the first day, the number of boys was 60 more than the number of girls.]
- B, C, A (On the second day, the number of boys decreased by 20% $\frac{2}{10}$ but the number of girls increased by 30% $\frac{3}{10}$.]
- A (Given that there were 468 children on the second day,] how many children were there on the first day?)

	Boys	Girls	Total
1 st Day	$10u + 60$	$10u$	<u><u>$20u + 60$</u></u>
Change	$-2u - 12$	$+3u$	
2 nd Day	$8u + 48$	$13u$	$21u + 48$

$$\frac{3}{10}(10u) = 3u$$

$$\frac{2}{10}(10u + 60) = 2u + 12$$

$$21u + 48 = 468$$



$$21u = 468 - 48$$

$$= 420$$

$$1u = 420 \div 21$$

$$= 20$$

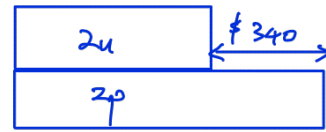
$$20u + 60 = 20 \times 20 + 60$$

$$= 460$$

Ans : 460

BUILD YOUR UNDERSTANDING

1. Calvin and Peter have a total savings of \$4190.
 $\frac{2}{3}$ of Calvin's savings is \$340 less than $\frac{2}{7}$ of Peter's savings.
 How much money does Calvin have?



	compared portion	Total
Calvin	$2u$	$3u$
Peter	$2p$ $2u + 340$	$7p$ $7u + 1190$
Total		$10u + 1190$

$$2p = 2u + 340$$

$$1p = 1u + 170$$

$$7p = 7u + 1190$$

$$10u + 1190 = 4190$$

$$10u = 4190 - 1190$$

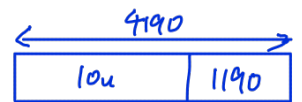
$$= 3000$$

$$1u = 3000 \div 10$$

$$= 300$$

$$3u = 3 \times 300$$

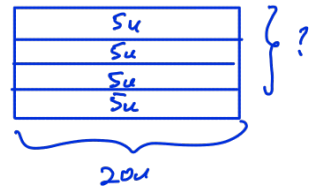
$$= 900$$



Ans : \$900

← make this divisible by 5 & 4

2. ^B There were $20u + 235$ more blue balloons than red balloons at a party.
^{B, C, A} After $\frac{4}{5}$ of the blue balloons and $\frac{3}{4}$ of the red balloons had burst,
^A there were 92 balloons left.
 How many balloons were there altogether at first?

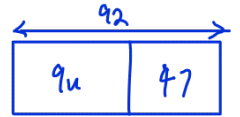


	Blue	Red	Total
Before	$20u + 235$	$20u$	$40u + 235$ <u> </u>
Change	$-16u - 188$	$-15u$	
After	$4u + 47$	$5u$	$9u + 47$

$$\frac{3}{4} (20u) = 15u$$

$$\frac{4}{5} (20u + 235) = 16u + 188$$

$$9u + 47 = 92$$



$$9u = 92 - 47$$

$$= 45$$

$$1u = 45 \div 9$$

$$= 5$$

$$40u + 235 = 40 \times 5 + 235$$

$$= 435$$

Ans : 435

P5 Module: Higher Order Thinking Skills

Unit Transfer Method (III)

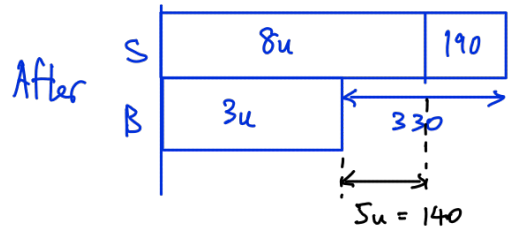
make this divisible by 3 & 4

3. ^B [Sally had \$285 more than Benson at first.]
^{B, C, A} [After Sally spent $\frac{1}{3}$ of her money and Benson spent $\frac{3}{4}$ of his money,]
^A [the amount of money that Sally had left was \$330 more than the amount that Benson had left.]
 How much money did Benson have at first?

	Sally	Benson
Before	$12u + 285$	$12u$
Change	$-4u - 95$	$-9u$
After	$8u + 190$	$3u$

$$\frac{3}{4}(12u) = 9u$$

$$\frac{1}{3}(12u + 285) = 4u + 95$$



$$8u - 3u = 330 - 190$$

$$5u = 140$$

$$u = 140 \div 5$$

$$= 28$$

$$12u = 12 \times 28$$

$$= 336$$

Ans : \$ 336

4. Trisha and Belinda were baking cookies for sale.

$\left[\frac{1}{3} \text{ of Trisha's cookies was 16 more than } \frac{1}{4} \text{ of Belinda's cookies.} \right]$ } B

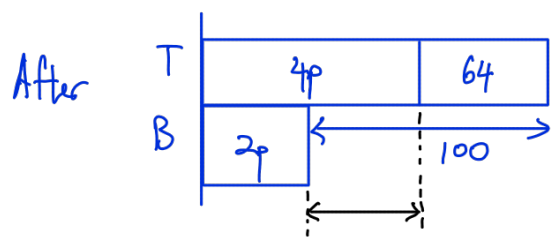
The next day, Trisha baked more cookies and her total number of cookies increased by $\frac{1}{3}$. } C
 Belinda's family ate $\frac{1}{2}$ of the cookies that Belinda baked.

In the end, Trisha had 100 more cookies than ~~Bernice~~ Belinda. A
 How many cookies did both girls have altogether in the end?

	Compared portion	Total	Change	After
Trisha	$1u$ $1p+16$	$3u$ $3p+48$	$+1p+16$	$4p+64$
Belinda	$1p$	$4p$	$-2p$	$2p$
Total				<u><u>$6p+64$</u></u>

$$\frac{1}{3}(3p+48) = 1p+16$$

$$\frac{1}{2}(4p) = 2p$$



$$4p - 2p = 100 - 64$$

$$2p = 36$$

$$1p = 36 \div 2$$

$$= 18$$

$$6p + 64 = 6 \times 18 + 64$$

$$= 172$$

Ans : 172

5B Last year, the number of men who signed up for a marathon was $\frac{8}{10}$ the number of women. *make women divisible by 10*

B, C, A This year, the number of men decreased by $\frac{5}{10}$ and the number of women increased by $\frac{3}{10}$.

A A total of 4675 men and women signed up for the marathon this year.

What was the total number of people who signed up for the marathon last year?

	Men	Women	Total
Before	8u	10u	18u
Change	-4u	+3u	
After	4u	13u	17u

$$\frac{1}{2}(8u) = 4u$$

$$\frac{3}{10}(10u) = 3u$$

$$17u = 4675$$

$$u = 4675 \div 17$$

$$= 275$$

$$18u = 18 \times 275$$

$$= 4950$$

Ans : 4950

CHALLENGE YOURSELF

make this divisible by 4 & 7

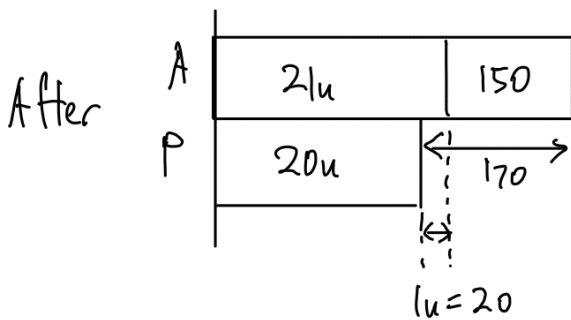
There were 200 more apples than pears at a fruit stall.] B
 After $\frac{1}{4}$ of the apples and $\frac{2}{7}$ of the pears were sold,] B, C, A
 there were 170 more apples than pears left.] A

- a) How many apples were there at the fruit stall at first?
- b) How many pears were left at the fruit stall in the end?

	Apples	Pears
Before	(a) $28u + 200$	$28u$
Change	$-7u - 50$	$-8u$
After	$21u + 150$	$20u$ (b)

$$\frac{1}{4}(28u + 200) = 7u + 50$$

$$\frac{2}{7}(28u) = 8u$$



$$21u - 20u = 170 - 150$$

$$u = 20$$

$$a) 28u + 200 = 28 \times 20 + 200$$

$$= 760$$

$$b) 20u = 20 \times 20$$

$$= 400$$

Ans : a) 760
 b) 400