Maths Alive!

Workshop for Parents

31 March 2023

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The materials shared in today's workshop is under the property of Junyuan Primary School, Mathematics Department.

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Thank you for your understanding.

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OBJECTIVES

- To see how Mathematics is connected to everyday life.
- To introduce strategies used to solve word problems.

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Koobits

01

Introduction to Mathematics Curriculum Framework

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Aims and Framework of Mathematics

Mathematics education aims to enable students to:

- acquire the necessary mathematical concepts and skills for everyday life,
- develop the necessary process skills for the acquisition and application of mathematical concepts and skills.
- develop the mathematical thinking and problem-solving skills and apply these skills to formulate and solve problems.
- recognise and use connections among mathematical ideas, and between mathematics and other disciplines.
- develop positive attitudes towards mathematics.

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Mathematics

connected to

develops

Everyday Life

Acquire mathematical concepts and skills for everyday use

Logical Reasoning

Develops thinking, reasoning and communication skills

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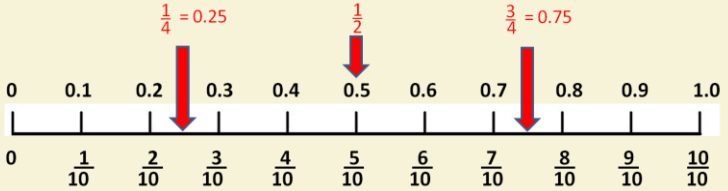
NUMBER AND ALGEBRA

- Students learning about **whole numbers, fractions** and **decimals** and use their knowledge in everyday situations. Word problems provide students with opportunity to apply mathematics concepts and skills in everyday situations



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MEASUREMENT AND GEOMETRY

- Students learn about **length, mass, area, volume, time**. This helps them develop **skills of measuring** and see the relevance in everyday situations.

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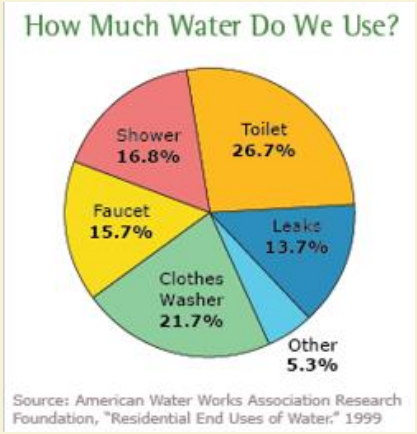
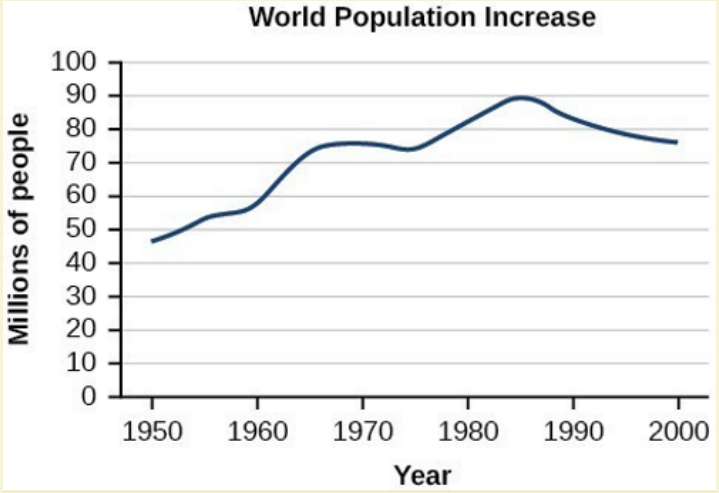
STATISTICS

- Students learn the methods and tools to analyse and **interpret data in graphs** and **pie charts** so that the useful information can be used for decision making and understanding a situation. This is a practical aspect of mathematics that is **relevant to everyday life** and situations





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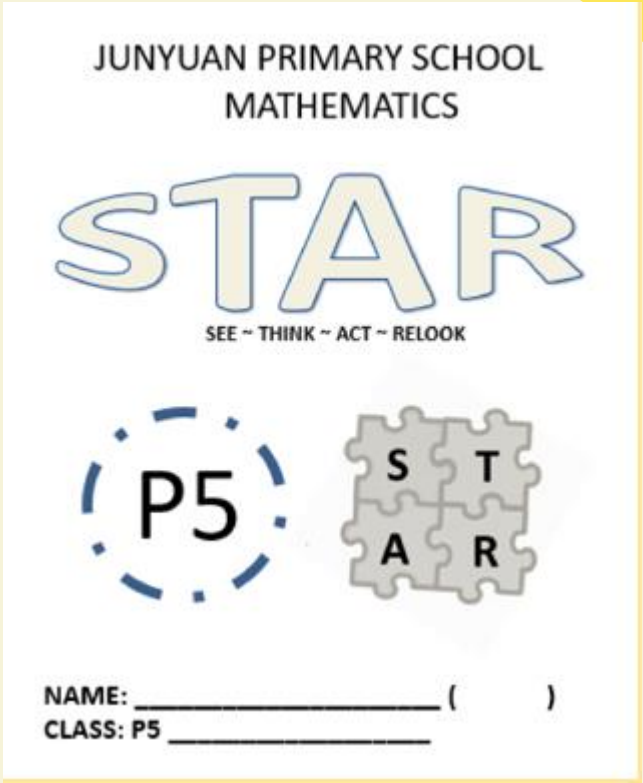
STRATEGY

- STAR approach
  - **S** ee what is given
  - **T** hink of a plan
  - **A** ct on my plan
  - **R** elook and check



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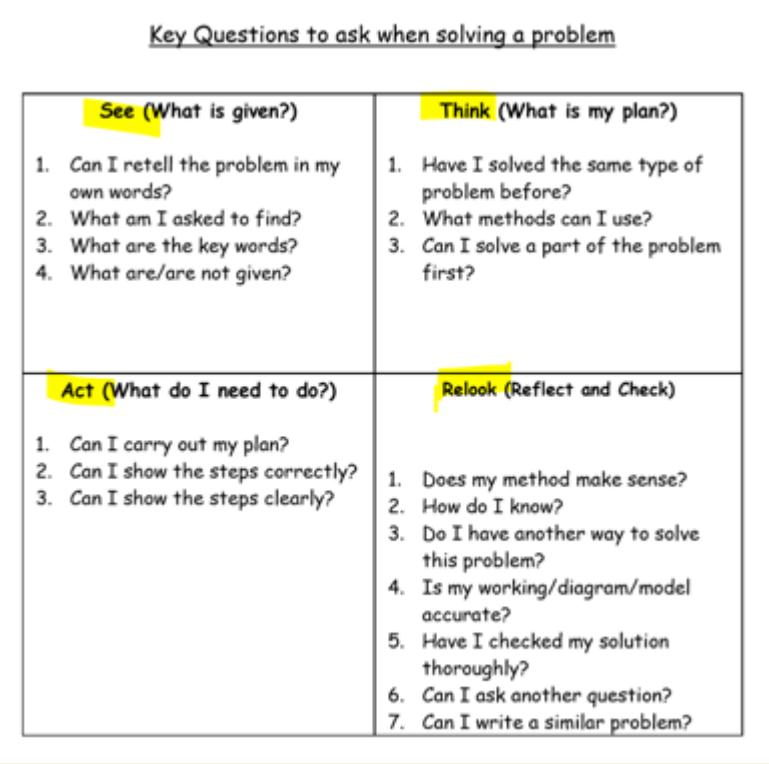

Key Questions to ask when solving a problem

See (What is given?)	Think (What is my plan?)
1. Can I retell the problem in my own words? 2. What am I asked to find? 3. What are the key words? 4. What are/are not given?	1. Have I solved the same type of problem before? 2. What methods can I use? 3. Can I solve a part of the problem first?
Act (What do I need to do?)	**Relook (Reflect and Check)**
1. Can I carry out my plan? 2. Can I show the steps correctly? 3. Can I show the steps clearly?	1. Does my method make sense? 2. How do I know? 3. Do I have another way to solve this problem? 4. Is my working/diagram/model accurate? 5. Have I checked my solution thoroughly? 6. Can I ask another question? 7. Can I write a similar problem?

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STRATEGY

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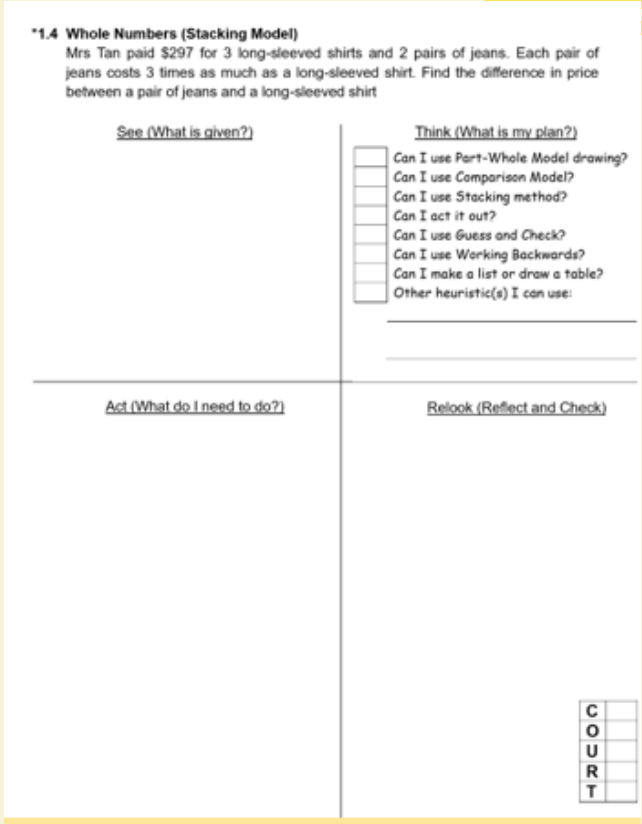

*1.4 **Whole Numbers (Stacking Model)**

Mrs Tan paid $297 for 3 long-sleeved shirts and 2 pairs of jeans. Each pair of jeans costs 3 times as much as a long-sleeved shirt. Find the difference in price between a pair of jeans and a long-sleeved shirt

See (What is given?)

Think (What is my plan?)

- ☐ Can I use Part-Whole Model drawing?
- ☐ Can I use Comparison Model?
- ☐ Can I use Stacking method?
- ☐ Can I act it out?
- ☐ Can I use Guess and Check?
- ☐ Can I use Working Backwards?
- ☐ Can I make a list or draw a table?
- ☐ Other heuristic(s) I can use:

Act (What do I need to do?)

Relook (Reflect and Check)

C	
O	
U	
R	
T	

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02

Introduction to Heuristics Word Problems

GUESS AND CHECK

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GUESS AND CHECK

QUESTION 1:

John bought a total of 20 oranges and apples for $9.40. Each orange cost 40 cents and each apple cost 60 cents. How many oranges did he buy?

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Question 1: Guess & Check

John bought a total of 20 oranges and apples for $9.40. Each orange cost 40 cents and each apple cost 60 cents. How many oranges did he buy?

No. of oranges	Cost of oranges (40 cents)	No. of apples	Cost of apples (60 cents)	Total Cost	Check ($9.40)
10	10 x $0.40 = $4	10	10 x $0.60 = $6	$4 + $6 = $10	✗
11	11 x $0.40 = $4.40	9	9 x $0.60 = $5.40	$4.40 + $5.40 = $9.80	✗
13	13 x $0.40 = $5.20	7	7 x $0.60 = $4.20	$5.20 + $4.20 = $9.40	✓

Answer : 13 oranges

GUESS AND CHECK

QUESTION 2:

In a test, there were a total of 40 questions.
For every question answered correctly, a student was awarded 4 points.
For each question answered wrongly, 1 point was deducted.
If Anna scored 130 points, how many questions did she answer wrongly?

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Question 2: Guess & Check

In a test, there were a total of 40 questions. For every question answered correctly, a student was awarded 4 points. For each question answered wrongly, 1 point was deducted. If Anna scored 130 points, how many questions did she answer wrongly?

Correct answers	Marks awarded	Wrong answers	Marks deducted	Total marks	Check (130 points)
20	20 x 4 = 80	20	20 x 1= 20	80 – 20 = 60	✗
30	30 x 4 = 120	10	10 x 1= 10	120 – 10 = 110	✗
34	34 x 4 = 136	6	6 x 1= 6	136 – 6 = 130	✓

Answer : 6 wrong answers

02

Introduction to Heuristics Word Problems

RESTATE THE PROBLEM

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RESTATE THE PROBLEM

QUESTION 1:

The total cost of 2 tables and 5 chairs is $2110.50. The total cost of 3 tables and 6 chairs is $2814. What is the cost of 1 chair?

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QUESTION 1: Restate the Problem

The total cost of 2 tables and 5 chairs is $2110.50. The total cost of 3 tables and 6 chairs is $2814. What is the cost of 1 chair?

2T + 5C → $2110.50

3T + 6C → $2814

1T + 1C → $2814 - $2110.50 = $703.50

3T + 3C → $703.50 x 3 = $2110.50

3C → $2814 - $2110.50 = $703.50

1 C → $703.50 ÷ 3 = $234.50

The cost of 1 chair is **$234.50**.

RESTATE THE PROBLEM

QUESTION 2:

4 pens and 7 exercise books cost $43.
4 pens and 3 exercise books cost $23.
Find the cost of 1 pen.

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QUESTION 2: Restate the Problem

4 pens and 7 exercise books cost $43. 4 pens and 3 exercise books cost $23. Find the cost of 1 pen.

4P + 7E → $43

4P + 3E → $23

4E → $43 - $23 = $20

1E → $20 ÷ 4 = $5

3E → $5 x 3 = $15

4P → $23 - $15 = $8

1P → $8 ÷ 4 = $2

The cost of 1 pen is **$2**.

OR

7E → $5 x 7 = $35

4P → $43 - $35 = $8

1P → $8 ÷ 4 = $2

03

Problems connected to everyday life

RATE OF CHARGES

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RATE OF CHARGES

Question 1:
The table shows the parking charges at a carpark.

Car Park Charges	
For the first hour	$2.50
For every additional $\frac{1}{2}$ hour	$0.80

Mr Tan parks his car from 11.30 a.m. to 2.00 p.m.
How much will he have to pay?

QUESTION 1: Rate of Charges

The table shows the parking charges at a carpark. Mr Tan parks his car from 11.30 a.m. to 2.00 p.m. How much will he have to pay?

Car Park Charges	
For the first hour	$2.50
For every additional $\frac{1}{2}$ hour	$0.80

11.30 a.m. to 12.30 p.m. → First h - $2.50

12.30 p.m. – 1.30 p.m. → 2 x $0.80 = $1.60

1.30 p.m. – 2p.m. → $0.80

Total → $2.50 + $1.60 + $0.80 = **$4.90**

He has to pay $4.90

RATE OF CHARGES

PSLE Question

QUESTION 2:

Shanti took a taxi from home to her office.
Her taxi fare was based on the charges shown.

First 1 km Every additional 400 m or less	$3.20 $0.22
Every 45 seconds of waiting or less	$0.22

The taxi stopped once at a traffic light for 1 min and travelled a total distance of 5.8 km to reach Shanti's office. How much was her taxi fare?

QUESTION 2: Rate of Charges

Shanti took a taxi from home to her office.
Her taxi fare was based on the charges shown.

First 1 km Every additional 400 m or less	$3.20 $0.22
Every 45 seconds of waiting or less	$0.22

The taxi stopped once at a traffic light for 1 min and travelled a total distance of 5.8 km to reach Shanti's office. How much was her taxi fare?

5.8 km – 1 km = 4.8 km First 1 km → $3.20

4.8 km = 4800 m

4800 m ÷ 400 m = 12 (12 additional 400 m in 4800m)

For this 4800 m → $0.22 x 12 = $2.64

1 min = 60 s

60 s – 45 s = 15 s → $0.22

15 s → $0.22

$3.20 + $2.64 + $0.22 + $0.22 = **$6.28**

Her taxi fare was $6.28.

RATE OF CHARGES

Question 3:

An adult entry ticket to a travel fair costs $3.
For every 4 paying adults, the 5th adult receives a free entry ticket.
What is the total cost of the entry tickets for 22 adults?

Question 3: Rate of Charges

An adult entry ticket to a travel fair costs $3. For every 4 paying adults, the 5th adult receives a free entry ticket. What is the total cost of the entry tickets for 22 adults?

22 ÷ 5 = 4R2 (4 groups of 5 adults with 2 adults remaining)
1 adult → $3
4 adults → $3 x 4 = $12
(Cost of 1 group of 5 adults will just pay for the cost of 4 adults)

1 group of 5 adults → $12
4 groups of 5 adults → $12 x 4 = $48
$48 + $3 + $3 = **$54** (total cost of 4 groups of 5 adults with 2 adults remaining)

The total cost is $54.

03

Problems connected to everyday life

Shortage and Excess

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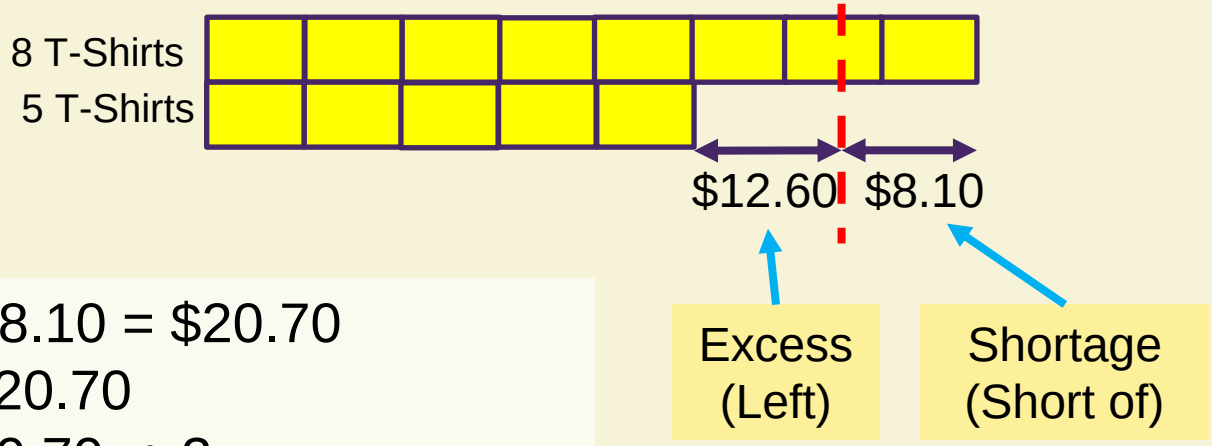
SHORTAGE AND EXCESS

Question 1:

Raymond wanted to buy 8 T-shirts but he was short of $8.10. Instead he bought 5 T-shirts and had $12.60 left. How much would he need to pay for 20 T-shirts?

Question 1 : Shortage & Excess

Raymond wanted to buy 8 T-shirts but he was short of $8.10. Instead he bought 5 T-shirts and had $12.60 left. How much would he need to pay for 20 T-shirts?



$12.60 + $8.10 = $20.70

3 units = $20.70

1 unit = $20.70 ÷ 3

= $6.90 (1 T-shirt)

20 units = $6.90 x 20

= $138 (20 T-shirts)

He would need to pay **$138**.

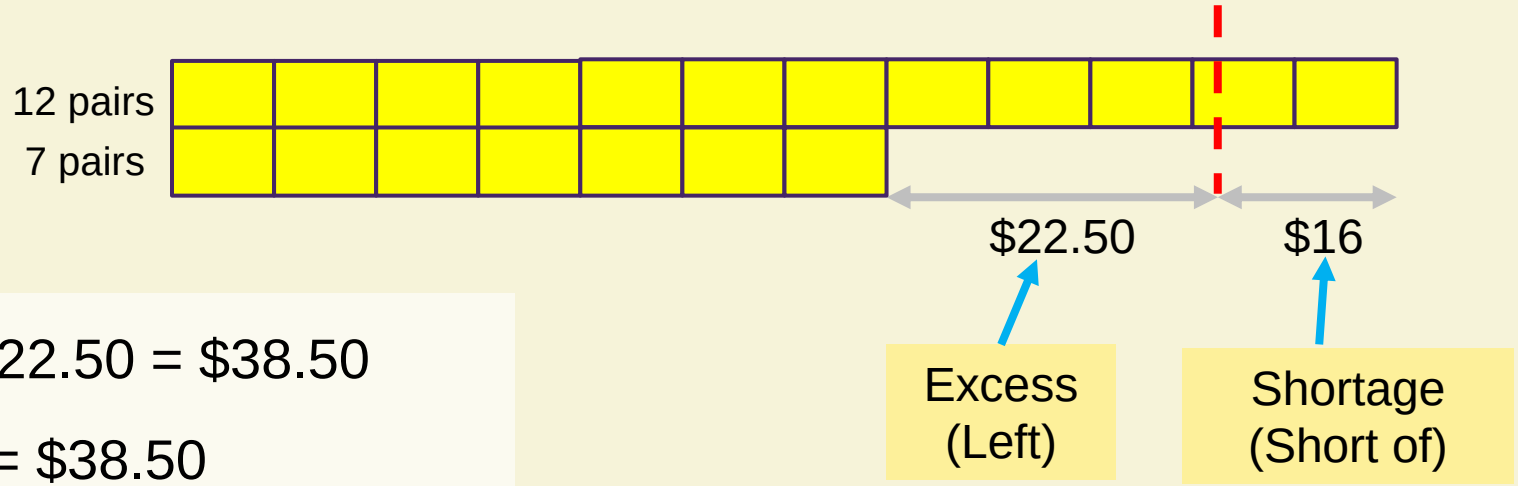
SHORTAGE AND EXCESS

Question 2:

Ben had a sum of money. He wanted to buy 12 pairs of socks but was short of $16. Instead he bought 7 pairs of socks and was left with $22.50. What was the cost of 1 pair of socks?

Question 2 : Shortage & Excess

Ben had a sum of money. He wanted to buy 12 pairs of socks but was short of $16. Instead he bought 7 pairs of socks and was left with $22.50. What was the cost of 1 pair of socks?



$16 + $22.50 = $38.50

5 units = $38.50

1 unit = $38.50 ÷ 5

= $7.70 (1 pair)

1 pair of socks cost **$7.70**

SHORTAGE AND EXCESS

Question 3:

Mr Lee gives a bag of sweets to each of his students. If he gives 13 sweets to each student, he is short of 39 sweets. If he gives 9 sweets to each student, he is short of 3 sweets.

(a) How many students does he have?

(b) How many sweets does he have altogether?

Question 3 : Shortage & Excess

Mr Lee gives a bag of sweets to his students. If he gives 13 sweets to each student, he is short of 39 sweets. If he gives 9 sweets to each student, he is short of 3 sweets.

(a) How many students does he have?

(b) How many sweets does he have altogether?

39 - 3 = 36 (The difference in the number of sweets that are short of for both scenarios)

13 – 9 = 4 (The difference in the number of sweets given to each student)

36 ÷ 4 = **9**

(a) He has **9** students.

13 x 9 = 117

117 - 39 = **78**

(b) He has **78** sweets altogether.

03

Problems connected to everyday life

Ratio

RATIO – ONE UNCHANGED QUANTITY

Question 1:

The number of black marbles to the number of white marbles was in the ratio 7 : 5. Mrs Tan gave away 39 black marbles and the ratio of the number of black marbles to the number of white marbles became 3 : 4. How many marbles did she have altogether at first?

Question 1 : Ratio (One unchanged quantity)

The number of black marbles to the number of white marbles was in the ratio 7 : 5. Mrs Tan gave away 39 black marbles and the ratio of the number of black marbles to the number of white marbles became 3 : 4. How many marbles did she have altogether at first?

Before:

	B	:	W	
4 x	7	:	5	
	28	:	20	X 4

After:

(No change in white marbles)

	B	:	W	
5 x	3	:	4	
	15	:	20	X 5

28 u - 15 u = 13 u (difference in units of black marbles)
13 units = 39
1 unit = 39 ÷ 13 = 3
48 units = 48 x 3 = 144 (Altogether at first)

28 u + 20 u
= 48 u (total at first)

She had **144** marbles altogether at first.

RATIO – ONE UNCHANGED QUANTITY

Question 2:

There were 80 mangoes and oranges in a fruit stall. 30% of them were mangoes. When some mangoes were sold, the percentage of mangoes dropped to 20%. How many mangoes were sold?

Question 2 : Ratio (One unchanged quantity)

There were 80 mangoes and oranges in a fruit stall. 30% of them were mangoes. When some mangoes were sold, the percentage of mangoes dropped to 20%. How many mangoes were sold?

Before:

M : O

8 x 3 : 7 X 8

24 : 56

After:

M : O

7 x 2 : 8 X 7

14 : 56

(No change in number of oranges)

24 - 14 = **10**

10 mangoes were sold.

RATIO – CONSTANT TOTAL

Question 3:

In a bus, the ratio of the number of men to the number of women was 2 : 5. After 3 men alighted the bus and another 3 women boarded the bus, the ratio of the number of men to the number of women was 1 : 3. How many men and women were there in the bus at first?

Question 3 : Ratio (Constant Total)

In a bus, the ratio of the number of men to the number of women was 2 : 5. After 3 men alighted the bus and another 3 women boarded the bus, the ratio of the number of men to the number of women was 1 : 3. How many men and women were there in the bus at first?

Before

	M	: W	: T
	2	: 5	: 7
4 x	8	: 20	: 28 (X 4)

(X 4)

After

	M	: W	: T
	1	: 3	: 4
7 x	7	: 21	: 28 (X 7)

(X 7)

(No change in total)

8u – 7 u = 1 u

1u = 3

28 u = $\frac{28}{1}$ x 3

= 84

There were **84** men and women at first.

03

Problems connected to everyday life

Mixed Topics

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MIXED TOPICS- RATIO & PERCENTAGE

PSLE Question

Question 1:

There were a total of 263 strawberry buns and blueberry buns in Uncle Lim's bakery. For the whole day, 41 strawberry buns and 20% of the blueberry buns were sold. At the end of the day, the ratio of the number of strawberry buns to blueberry buns he had was 1:4.

(a) Express the number of blueberry buns sold as a fraction. (Give your answer in the simplest form.)

(b) What was the number of buns Uncle Lim had at the end of the day?

Question 1 : Mixed Topics – Ratio & Percentage

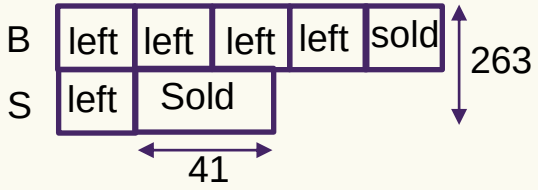
There were a total of 263 strawberry buns and blueberry buns in Uncle Lim's bakery. For the whole day, 41 strawberry buns and 20% of the blueberry buns were sold. At the end of the day, the ratio of the number of strawberry buns to blueberry buns he had was 1:4.

(a) Express the number of blueberry buns sold as a fraction. (Give your answer in the simplest form.)

(b) What was the number of buns Uncle Lim had at the end of the day?

$$20\% \rightarrow \frac{20}{100}$$
$$= \frac{1}{5}$$

(a) The fraction was $\frac{1}{5}$.



$6u = 263 - 41$
$= 222$
$5u = \frac{5}{6} \times 222$
$= \mathbf{185}$

(b) The number was **185**.

MIXED TOPICS- FRACTIONS & PERCENTAGE

Question 2:

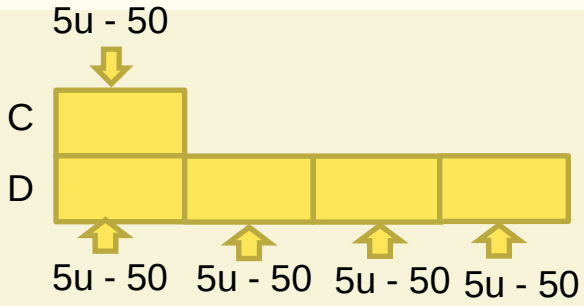
A farmer had $\frac{5}{8}$ as many chickens as ducks at first. After selling 50 chickens and 8 ducks, he had 25% as many chickens as ducks. How many ducks did the farmer have at first?

Question 2 : Mixed Topics – Fractions & Percentage

A farmer had $\frac{5}{8}$ as many chickens as ducks at first. After selling 50 chickens and 8 ducks, he had 25% as many chickens as ducks. How many ducks did the farmer have at first?

25% = $\frac{1}{4}$

	Before	Change	After
Chicken	5u	-50	1p
Ducks	8u	-8	4p



Method:

B – C – A: Before – Change – After

20u – 200 = 8u – 8

20u – 8u = 200 – 8

12u = 192

1u = $\frac{192}{12}$

= 16

8 u = 16 x 8 = **128**

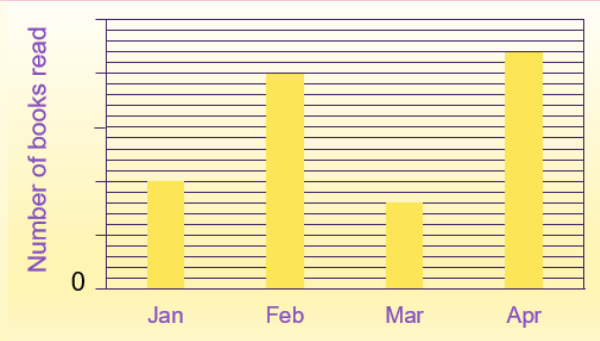
The farmer had **128** ducks at first.

MIXED TOPICS- PERCENTAGE & AVERAGE

PSLE Question

Question 3:

The bar graph shows the number of books read by Class 6A from January to April. The number of books read is not shown on the scale.

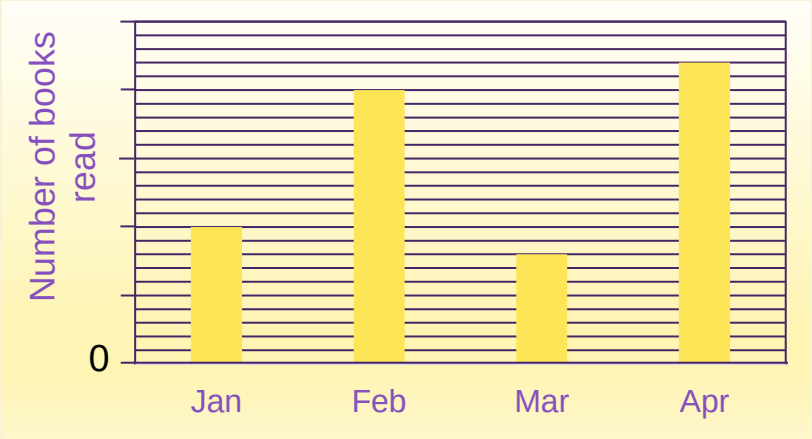


(a) What was the percentage increase in the number of books read from January to February?

(b) The average number of books read in a month from January to April was 75. How many books did Class 6A read in April?

Question 3 : Mixed Topics – Percentage & Average

The bar graph shows the number of books read by Class 6A from January to April. The number of books read is not shown on the scale



PSLE Question

(a) What was the percentage increase in the number of books read from January to February?

(b) The average number of books read in a month from January to April was 75. How many books did Class 6A read in April?

(a) $\frac{10}{10}$ x 100% = 100%

The percentage increase was **100%**

(b) 75 x 4 = 300 (total books)
10 + 20 + 8 + 22 = 60
300 ÷ 60 = 5
22 x 5 = 110

Class 6A read **110** books in April.

04

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Latest CP Submitted

Name	School	Latest CP	Submission Time
Basco, *****	UST Angelicum College	3	10:07, 2023-Mar-29
Papa, L*****	Cembo Elementary School	1	10:07, 2023-Mar-29
Ahmed U*****	Madrasah Wak Tanjong Al-Islamiah	2	10:07, 2023-Mar-29
Berbano*****	West Rembo Elementary School	1	10:07, 2023-Mar-29

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Joewen Teo
Junyuan Primary School
0 XP
Lvl 1
Brain Games
Events
Story
Daily Challenge
10 personalized questions per day
Start
Mission
Multiplayer
Assignment
0
Total CPs
1000
KoKo Credits
Bonus
Daily Bonus
Dr. Miko is asking you...
Switch to Teacher

Daily Challenge

Daily Challenge - Math

10 personalized questions per day

Opening Hours:
6am to 10pm, Monday to Saturday

Total Qns
10

Rewards
17 CPs (Full Score)

Start Challenge

Super Vision Challenge

Opening Hours:
6am to 10pm, Monday to Saturday

Score of the Week
0

Start Challenge

Super Speed Challenge

Opening Hours:
6am to 10pm, Monday to Saturday

Score of the Week
0

Start Challenge


KooBits
School
Math
Home
Report
Leaderboard
Friends
Help
Joewen Teo
Junyuan Primary School
0 XP
Lvl 1
Brain Games
Events
Story
Daily Challenge
10 personalized questions per day
Start
Mission
Multiplayer
Assignment
0
Total CPs
1000
KoKo Credits
Bonus
Daily Bonus
Dr. Miko is asking you...
Switch to Teacher


KooBits
Brain
Games
Memory
Flexibility
Speed
Adventure


KooBits
School
Math
Home
Report
Leaderboard
Friends
Help
Joewen Teo
Junyuan Primary School
0 XP
Lvl 1
Brain Games
Events
Story
Daily Challenge
10 personalized questions per day
Start
0
Total CPs
1000
KoKo Credits
Daily Bonus
Mission
Multiplayer
Assignment
Dr. Miko is asking you...
Switch to Teacher

Click Practice Button to Start! (Total 216 skills)

Primary 2 Change Level

0 / 54

Numbers to 1000

Proficiency % | High Score

	High Score	Skill Name	Difficulty	Tutorial
1	☆☆☆	Use base ten blocks to read and write numbers to 1000		Practice
2	☆☆☆	Count on by 1s to 1000		Practice
3	☆☆☆	Count on by 10s to 1000		Practice
4	☆☆☆	Count on by 100s to 1000		Practice
5	☆☆☆	Compare numbers to 1000		Practice
6	☆☆☆	Identify the greatest or the smallest number from a given number list		Practice
7	☆☆☆	Identify odd and even numbers		Practice
8	☆☆☆	Write numbers to 1000 in numerals		Practice
9	☆☆☆	Write numbers to 1000 in words		Practice
10	☆☆☆	Use place value charts to show numbers to 1000		Practice


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Latest CP Submitted

Name	School	Latest CP	Submission Time	
Basco, *****	UST Angelicum College	3	10:07, 2023-Mar-29	
Papa, L*****	Cembo Elementary School	1	10:07, 2023-Mar-29	
Ahmed U*****	Madrasah Wak Tanjong Al-Islamiah	2	10:07, 2023-Mar-29	
Berbano*****	West Rembo Elementary School	1	10:07, 2023-Mar-29	

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THANK
YOU!