Parents' Workshop 2020

Primary 5 Standard Mathematics

PUNGGOL COVE PRIMARY SCHOOL

Objectives of this workshop:

- To share new Mathematics concepts (Ratio and Percentage) introduced at the Primary 5 level

- To share the application of the one of the heuristic strategies used in problem solving taught at Primary 5 level

Singapore Mathematics Syllabus

"Mathematics is a largely hierarchical in nature. Higher concepts and skills are built upon the more foundational ones and have to be learned in sequence. ***A spiral approach is adopted in the building up of content across levels****."*

https://www.moe.gov.sg/docs/default-source/document/education/syllabuses/sciences/files/mathematics_syllabus_primary_1_to_6.pdf

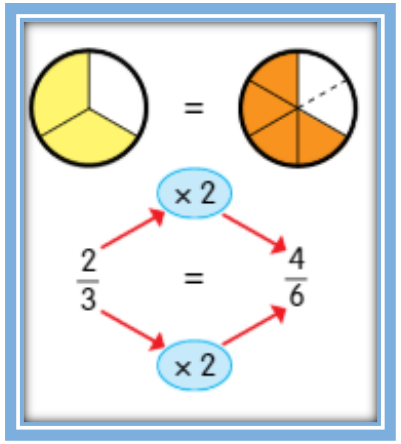
Topics taught at different levels

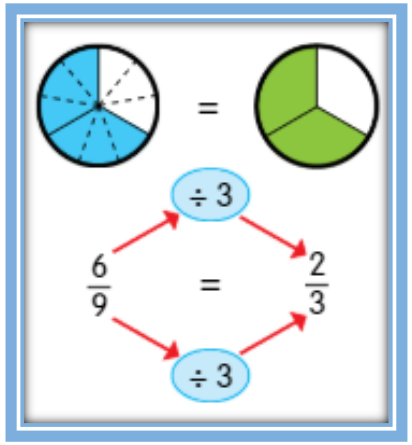
Primary 1	Primary 2	Primary 3	Primary 4	Primary 5	Primary 6
Whole Numbers	Whole Numbers	Whole Numbers	Whole Numbers	Whole Numbers	Whole Numbers
Measurement	Measurement	Measurement	Measurement	Measurement	Measurement
Geometry	Geometry	Geometry	Geometry	Geometry	Geometry
Data Analysis	Data Analysis	Data Analysis	Data Analysis	Data Analysis	Data Analysis
	Fractions	Fractions	Fractions	Fractions	Fractions
			Decimals	Decimals	Decimals
				Percentage	Percentage
				Ratio	Ratio
				Rate	Rate
					Speed

Ratio

New Topic

Prerequisite Knowledge

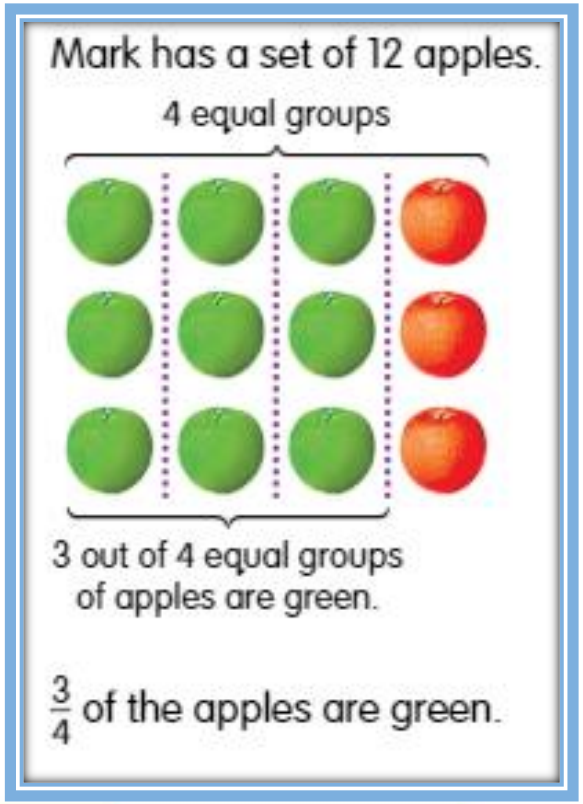




In **Primary 3 & 4** , students have learnt to:

- Find equivalent fractions
- Find common factors
- Fraction of a set
- Using models to solve word problems

Number	Factors	Common Factors
8	**1, 2, 4** and 8	1, 2 and 4
12	**1, 2,** 3, **4**, 6 and 12	

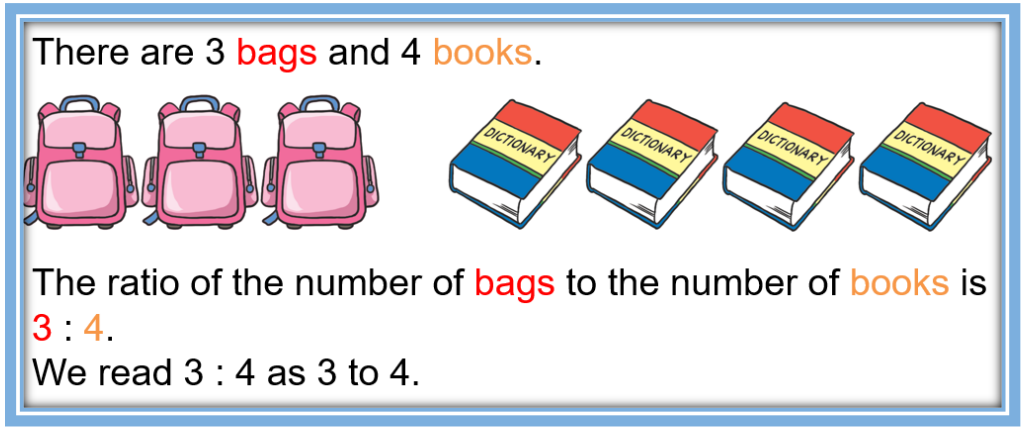


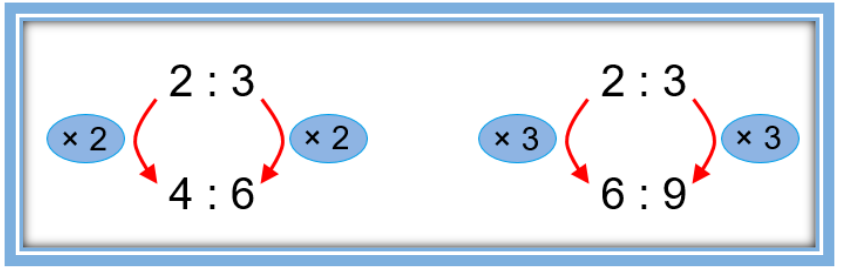
Images extracted from MPAH! Maths Pupil's Book 3B

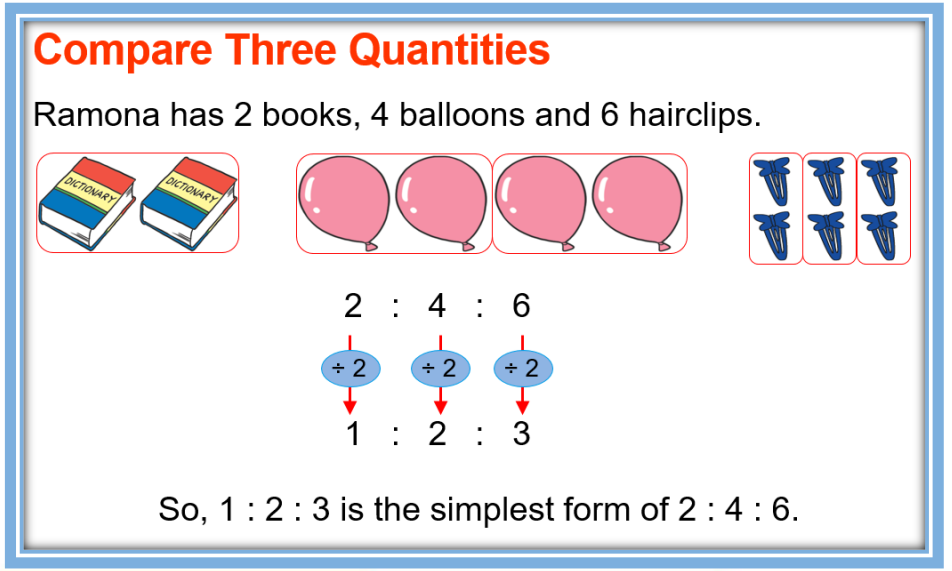
Ratio at Primary 5 Level

Students will learn to:

- Read and write ratios
- Find equivalent ratios.
- Read and write ratios with three quantities.
- Express equivalent ratios with three quantities.
- Solve up to two-step word problems involving ratios with two or three quantities.







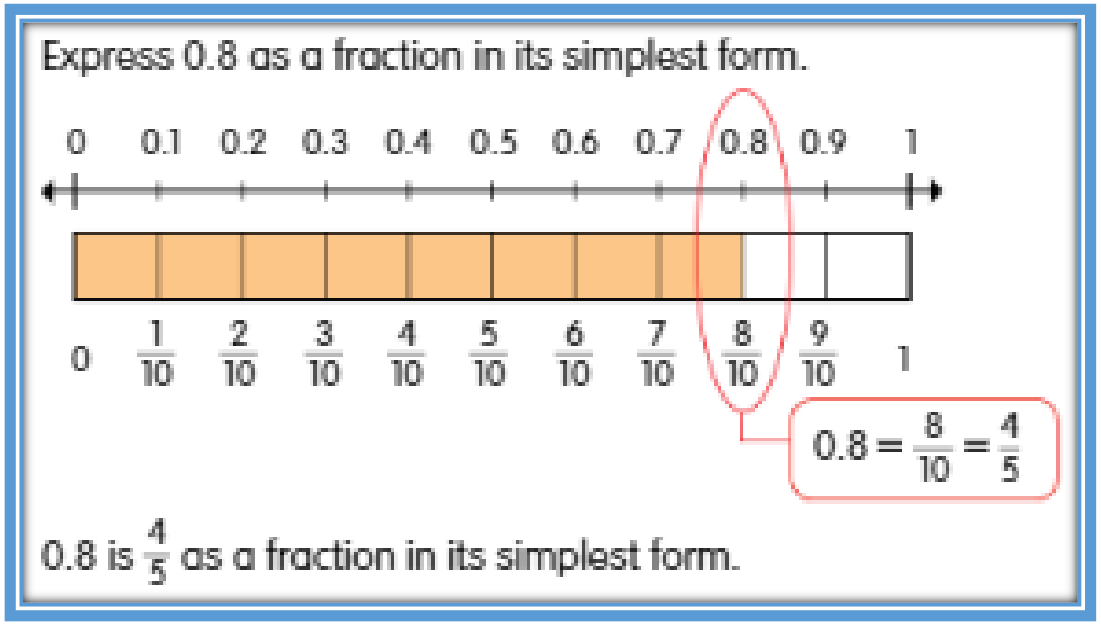
Images extracted from MPAH! Maths Teaching Aid Slides

Percentage *New Topic*

Prerequisite Knowledge

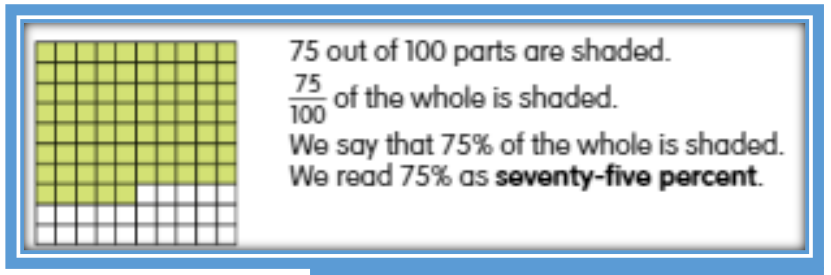
In **Primary 3 & 4** , students have learnt to:

- Find equivalent fractions
- Find common factors
- Express fractions as equivalent decimals and vice versa.



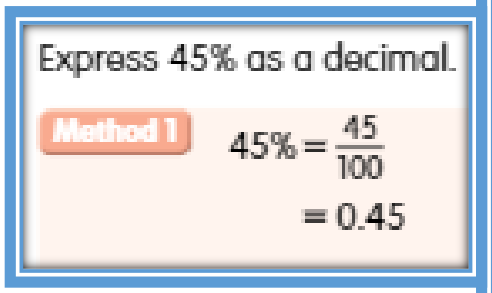
Images extracted from MPAH! Maths Pupil's Book 4B

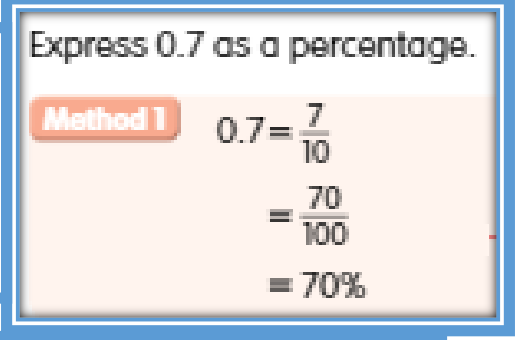
Percentage at Primary 5 Level

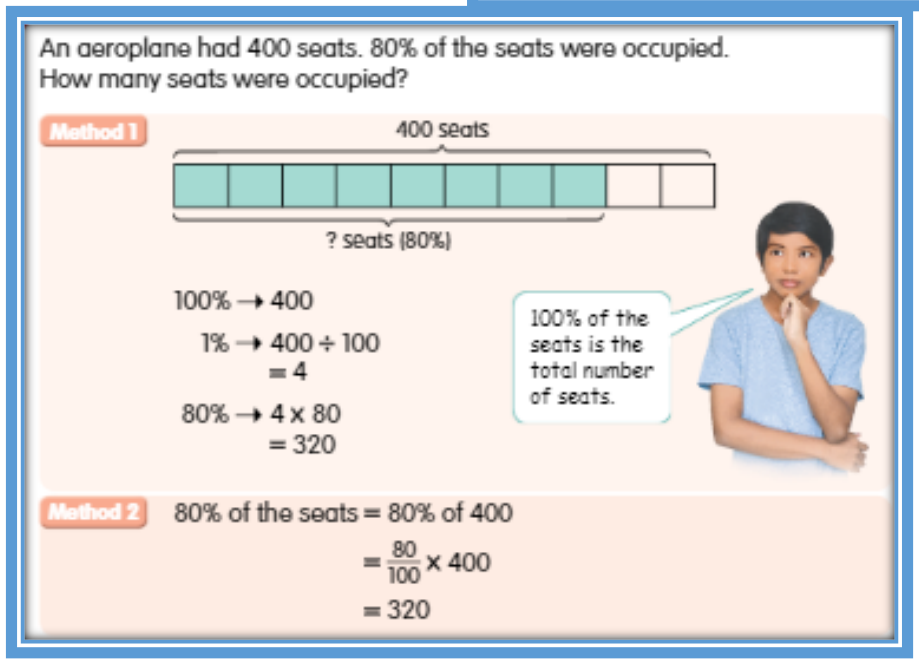


Students will learn to:

- Relate percent to parts of a whole where the whole is made up of 100 equal parts.
- Express percentages as fractions and as decimals.
- Express decimals and fractions as percentages.
- Find the percentage of a quantity.
- Solve multi-step word problems involving percentages.







Images extracted from MPAH! Maths Pupil's Book 5B

Common Errors / Misconceptions

Whole Numbers

- **Wrong use of mathematical symbol "=" sign**

Error : 35 + 10 = 45 ÷ 5 = 9 X

Correct: 35 + 10 = 45

45 ÷ 5 = 9 ✓

Whole Numbers

- **Inconsistent use of units in equations**

Error : 10 kg – 3 = 7 kg X
$1 – 70 = 30 X

Correct: 10 kg – 3 kg = 7 kg ✓
10 – 3 = 7 ✓
$1 – 70 ¢ = 30 ¢ ✓
100 – 70 = 30 ✓
1 – 0.7 = 0.3 ✓

Fractions

- **Wrong use of mathematical symbol "=" sign**

Error : $\frac{1}{4} = 50$ X

Correct: $\frac{1}{4}$ of beads = 50 ✓

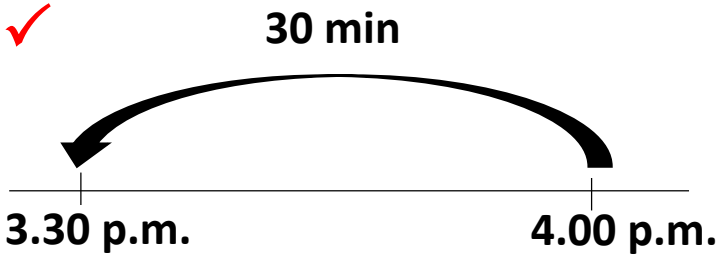
$\frac{1}{4} \rightarrow 50$ ✓

Time

- **Wrong use of equations to present time**

Error : 4 p.m. – 30 min = 3.30p.m. X

Correct: Drawing Timeline ✓



30 min before 4 p.m. → 3.30 p.m ✓

Percentage

- **Wrong presentation of equations**

Error : 20% = 40 g ✗

Correct: 20% of 200g = 40g ✓
20% of 200 = 40 ✓

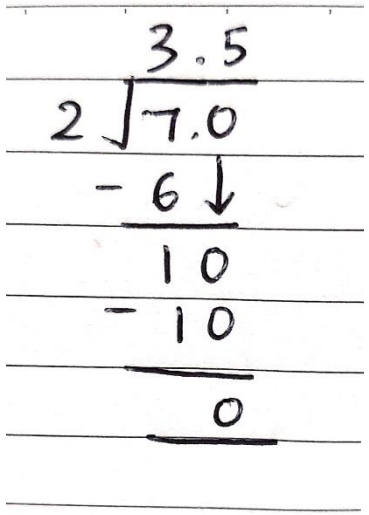
Error : $\frac{1}{4}$ = 25 ✗

Correct: $\frac{1}{4}$ = 25% ✓

Common Errors / Misconceptions

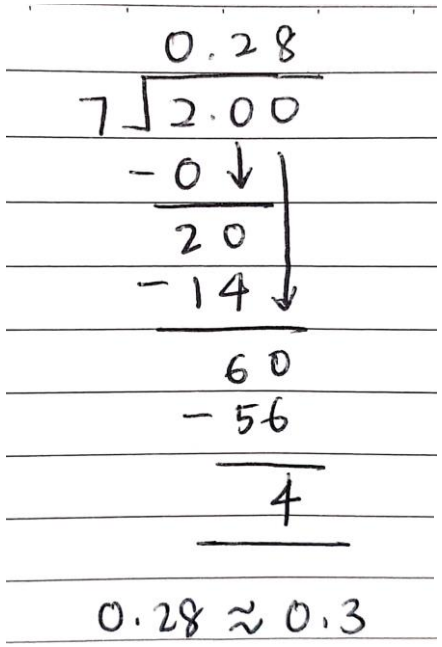
Can you spot the error?

Q1. Express $\frac{2}{7}$ as a decimal. Round your answer to the nearest ten.



Ans: <u>3.5</u>

<u>CHECK</u>
Is your answer reasonable?



Ans: <u>0.3</u> ✓

Common Errors / Misconceptions

Can you spot the error/s?

Jane had $100. She spent $40 on files and bought 2 skirts of the same price with the rest of her money. How much did each skirt cost?

$100 – $40 ÷ 2
= 60 ÷ 2
= 30

Correct way:
($100 – $40) ÷ 2
= $30 ✓

2 steps:
$100 – $40 = $60
$60 ÷ 2 = $30 ✓

Ans: $30

Errors:
1. Missing brackets
2. Inconsistent use of units

Model Drawing

Fraction of Remainder Concept

Prerequisite: Fractions

A number that expresses equal parts of a whole object or set of objects

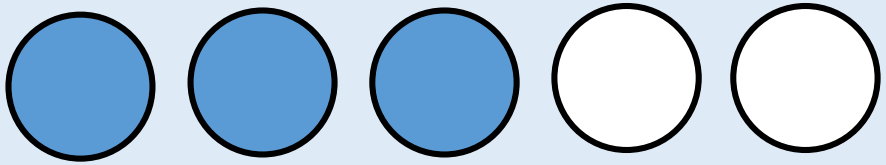
$$\frac{3}{5}$$

Numerator
Number of parts we have

Denominator
Total number of parts in a whole

Part of a whole object

Part of a set of objects

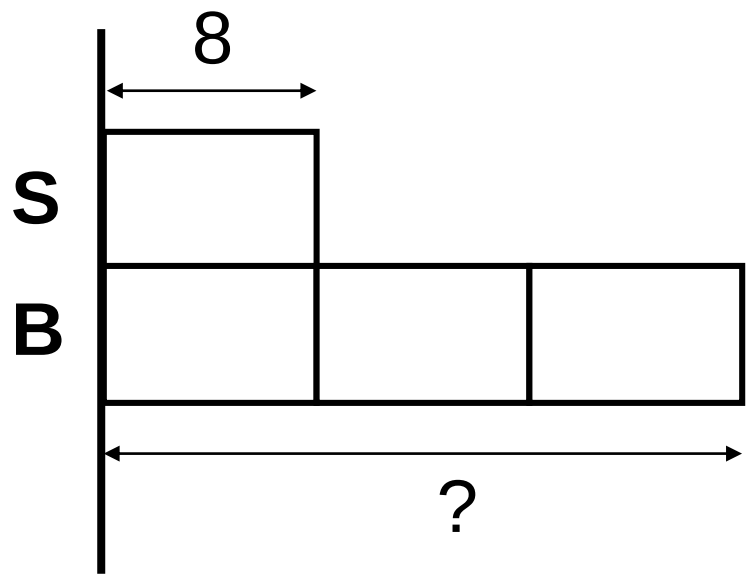


Prerequisite: Model Drawing (Unitary Method)

Sam bought 8 cookies.

Ben bought thrice as many cookies as Sam.

How many cookies did Ben buy?



"u" represents units

1u = 8

3u = 3 × 8 = 24

Ans: 24

Question 1

Step 1

Understand

Number of apples = ?

Sold: 2 parts,
Remaining: 1 part

A fruit seller had some apples. He sold $\frac{2}{3}$ of the apples. $\frac{1}{4}$ of the remaining apples were rotten and the rest were used to make apple juice. 30 apples were used to make apple juice. How many apples did the fruit seller have at first?

→ **Rotten: 1 unit, Juice: 3 units**

→ **3 units = 30**

Question 1

Step 2

Plan

Number of apples = ?

Sold: 2 parts,
Remaining: 1 part

A fruit seller had some apples. He sold $\frac{2}{3}$ of the apples. $\frac{1}{4}$ of the remaining apples were rotten and the rest were used to make apple juice. 30 apples were used to make apple juice. How many apples did the fruit seller have at first?

→ **Rotten: 1 unit, Juice: 3 units**

→ **3 units = 30**

Select a Strategy: **Model Drawing (Fraction of Remainder)**

Reason: Drawing a Fraction of Remainder model will help us to visualize and understand the question.

Question 1

Step 3

Do

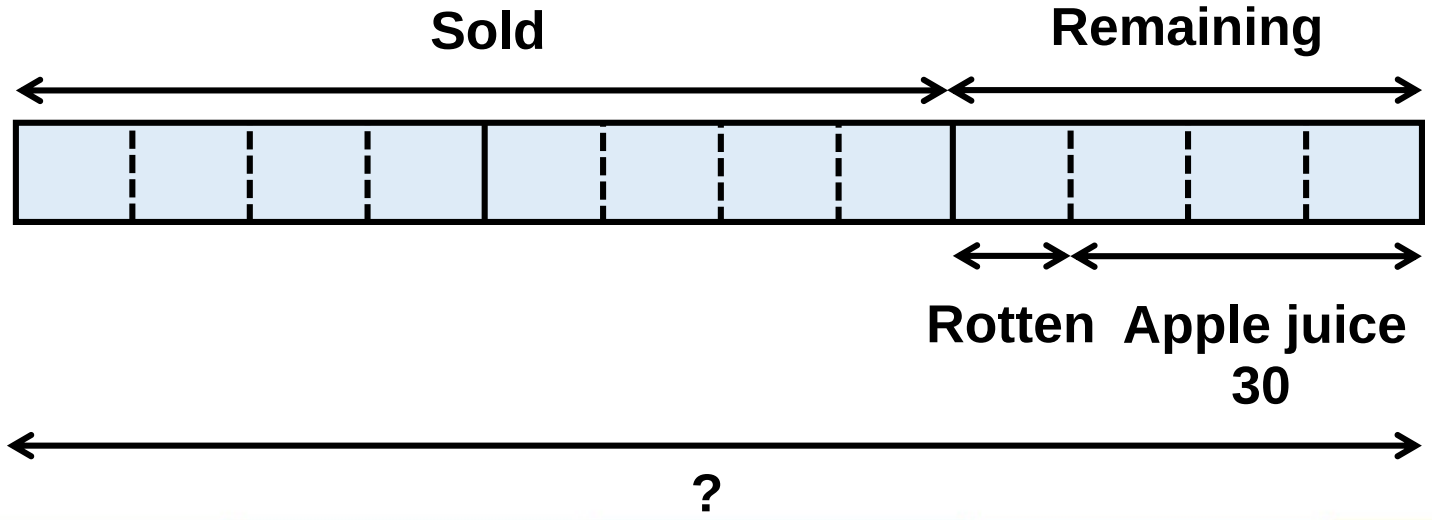
Number of apples = ?

Sold: 2 parts,
Remaining: 1 part

A fruit seller had some apples. He sold $\frac{2}{3}$ of the apples. $\frac{1}{4}$ of the remaining apples were rotten and the rest were used to make apple juice. 30 apples were used to make apple juice. How many apples did the fruit seller have at first?

→ Rotten: 1 unit, Juice: 3 units

→ 3 units = 30



3u = 30

1u = 30 ÷ 3 = 10

12u = 12 × 10 = 120

Ans: 120

Question 1

Step 4

Check

Number of apples = ?

Sold: 2 parts,
Remaining: 1 part

A fruit seller had some apples. He sold $\frac{2}{3}$ of the apples. $\frac{1}{4}$ of the remaining apples were rotten and the rest were used to make apple juice. 30 apples were used to make apple juice. How many apples did the fruit seller have at first?

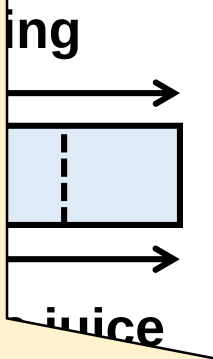
→ **Rotten: 1 unit, Juice: 3 units**

→ **3 units = 30**

Check by working backwards:

- Find the number of apples used to make apple juice. Check if it is 30.

  120 ÷ 3 = 40 (remaining apples)
  4u = 40
  1u = 40 ÷ 4 = 10
  3u = 3 × 10 = 30 ✓



3u = 30

1u = 30 ÷ 3 = 10

12u = 12 × 10 = 120

Ans: 120

Let’s try!

Question 2

Mr Shafiq bought some donuts. $\frac{3}{4}$ of the donuts were chocolate donuts. $\frac{1}{3}$ of the remaining donuts were sugar donuts and the rest were plain donuts. She bought 8 plain donuts. How many donuts did Mr Shafiq buy?

Question 2

Step 1

Understand

Number of donuts = ?

C: 3 parts

Remaining: 1 part

Mr Shafiq bought some donuts. $\frac{3}{4}$ of the donuts were chocolate donuts. $\frac{1}{3}$ of the remaining donuts were sugar donuts and the rest were plain donuts. She bought 8 plain donuts. How many donuts did Mr Shafiq buy?

→ **S: 1 unit, P: 2 units**

→ **2 units = 8**

Question 2

Step 2

Plan

Number of donuts = ?

C: 3 parts
Remaining: 1 part

Mr Shafiq bought some donuts. $\frac{3}{4}$ of the donuts were chocolate donuts. $\frac{1}{3}$ of the remaining donuts were sugar donuts and the rest were plain donuts. She bought 8 plain donuts. How many donuts did Mr Shafiq buy?

→ **S: 1 unit, P: 2 units**

→ **2 units = 8**

Select a Strategy: **Model Drawing (Fraction of Remainder)**

Reason: Drawing a Fraction of Remainder model will help us to visualize and understand the question.

Question 2

Step 3

Do

Number of donuts = ?

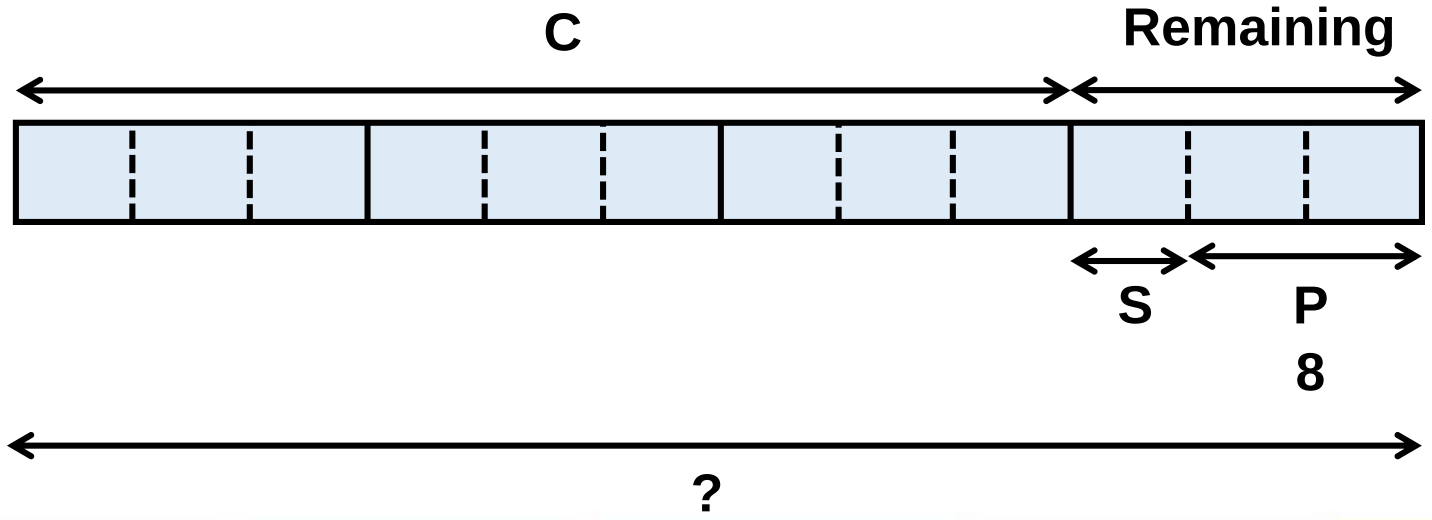
C: 3 parts

Remaining: 1 part

Mr Shafiq bought some donuts. $\frac{3}{4}$ of the donuts were chocolate donuts. $\frac{1}{3}$ of the remaining donuts were sugar donuts and the rest were plain donuts. She bought 8 plain donuts. How many donuts did Mr Shafiq buy?

→ **S: 1 unit, P: 2 units**

→ **2 units = 8**



2u = 8

1u = 8 ÷ 2 = 4

12u = 4 × 12 = 48

Ans: 48

Question 2

Step 4

Check

Number of donuts = ?

C: 3 parts

Remaining: 1 part

Mr Shafiq bought some donuts. $\frac{3}{4}$ of the donuts were chocolate donuts. $\frac{1}{3}$ of the remaining donuts were sugar donuts and the rest were plain donuts. She bought 8 plain donuts. How many donuts did Mr Shafiq buy?

→ **S: 1 unit, P: 2 units**

→ **2 units = 8**

Check by working backwards:

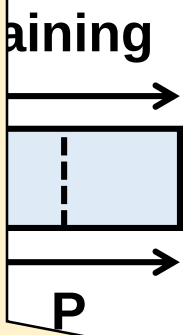
- Find the number of plain donuts.
- Check if it is 8.

48 ÷ 4 = 12 (remaining donuts)

3u = 12

1u = 12 ÷ 3 = 4

2u = 2 × 4 = 8 ✓



2u = 8

1u = 8 ÷ 2 = 4

12u = 4 × 12 = 48

Ans: 48

Feedback Form

http://tiny.cc/pojxiz