JUNYUAN PRIMARY SCHOOL

Welcome to
P3 and P4 Math Alive
Workshop for Parents
Fri, 8 April 2022

JUNYUAN PRIMARY SCHOOL

A note to P4 parents:

This workshop is similar to last year's
"P3 and P4 Math Alive" Workshop.

If you have attended last year,
feel free to excuse yourself from today's workshop or
go ahead and attend this as a refresher workshop.

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

Please do not take any photos or videos throughout the sharing.

Thank you for your understanding.

Math Alive!

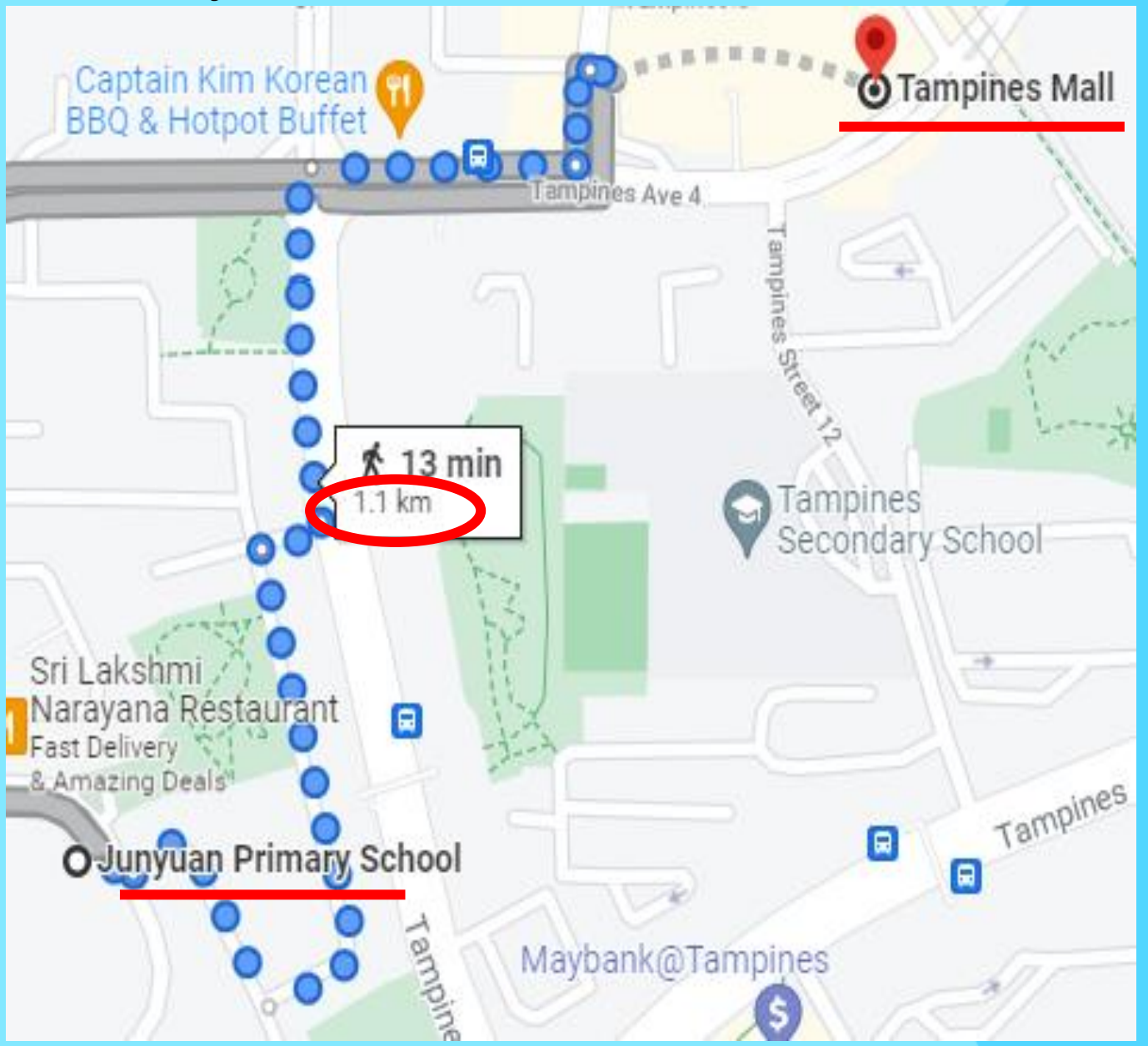
1 km = 1000 m

Junyuan Primary School, 2 Tampines Stre

Tampines Mall, 4 Tampines Central 5, Sin

via Tampines Ave 5 — 13 min

Mostly flat — 1.1 km



The distance from JYPS to Tampines Mall is about 1 km.
Time taken is 13 min.

Math Alive!

How heavy is Mr A?

Ans: 102 kg

Mr A jogs every morning and he is 12 kg lighter now. How heavy is he now?

Ans:

102 kg – 12 kg = 90 kg

Math Alive!

How much is the amount shown?

Ans: $189

Mr B wants to buy a bicycle that costs $200. How much more money does he need?

Ans:

$200 - $189 = $11

Math Alive!

Miss X bought a pizza for the family and cut it equally into 6 pieces.

Her son ate $\frac{1}{3}$ of the pizza.

Her daughter ate a slice of the pizza.

What fraction of the pizza was left?

Ans:

$\frac{1}{3} = \frac{2}{6}$ **(son ate 2 slices)**

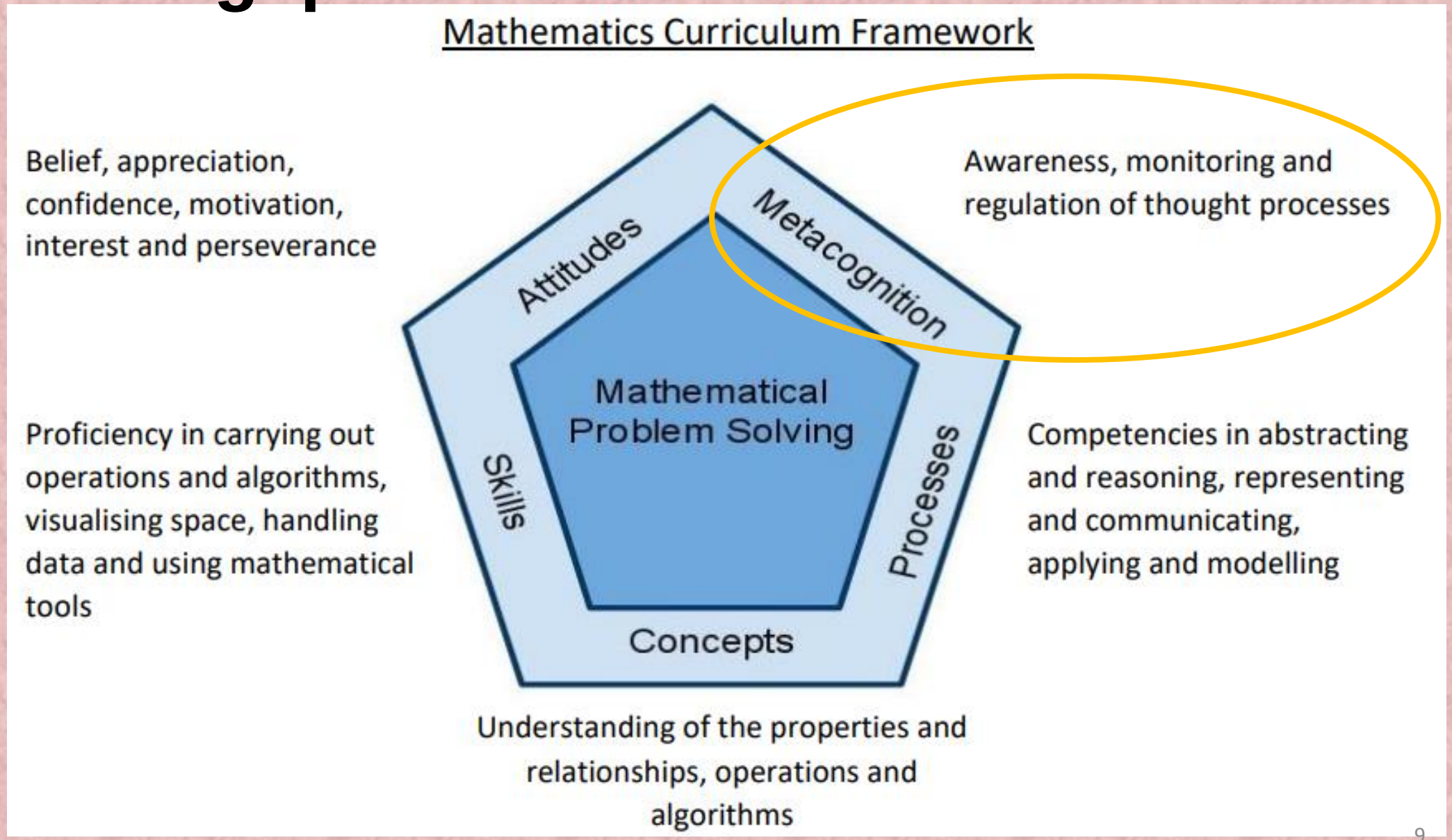
2 + 1 = 3 (total slices eaten)

$\frac{3}{6} = \frac{1}{2}$ **(left)**

Outline of Workshop

1) Introduction to Metacognition in Problem Solving using **STAR** approach
2) Problem Solving using **Model Drawing** strategy
3) Problem Solving using **Restate the Problem** strategy
4) Q & A

Singapore Mathematics Framework



Metacognition

Definition

Think about one's own thinking – To be critically aware of one's thinking and learning.

Process

- Monitor one's own thinking and one's existing state of knowledge
- Self-regulate one's learning through goal setting, self-monitoring and self instruction

Metacognition

How to develop metacognitive awareness

- Exposure to general problem solving skills
- Thinking aloud using the strategies and methods taught
- Attempting problems that require planning and evaluation
- Seeking alternative ways to solve a problem
- Checking reasonableness of answers

Metacognition

STAR approach

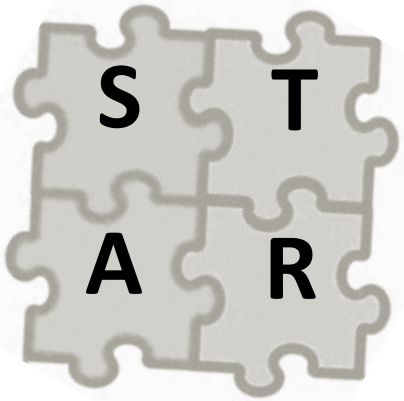
- **S** ee what is given
- **T** hink of a plan
- **A** ct on my plan
- **R** elook and check

JUNYUAN PRIMARY SCHOOL
MATHEMATICS

STAR

***S**EE ~ **T**HINK ~ **A**CT ~ **R**ELOOK*

P3



NAME : _____

CLASS : P3 - _____

See (What is given?)

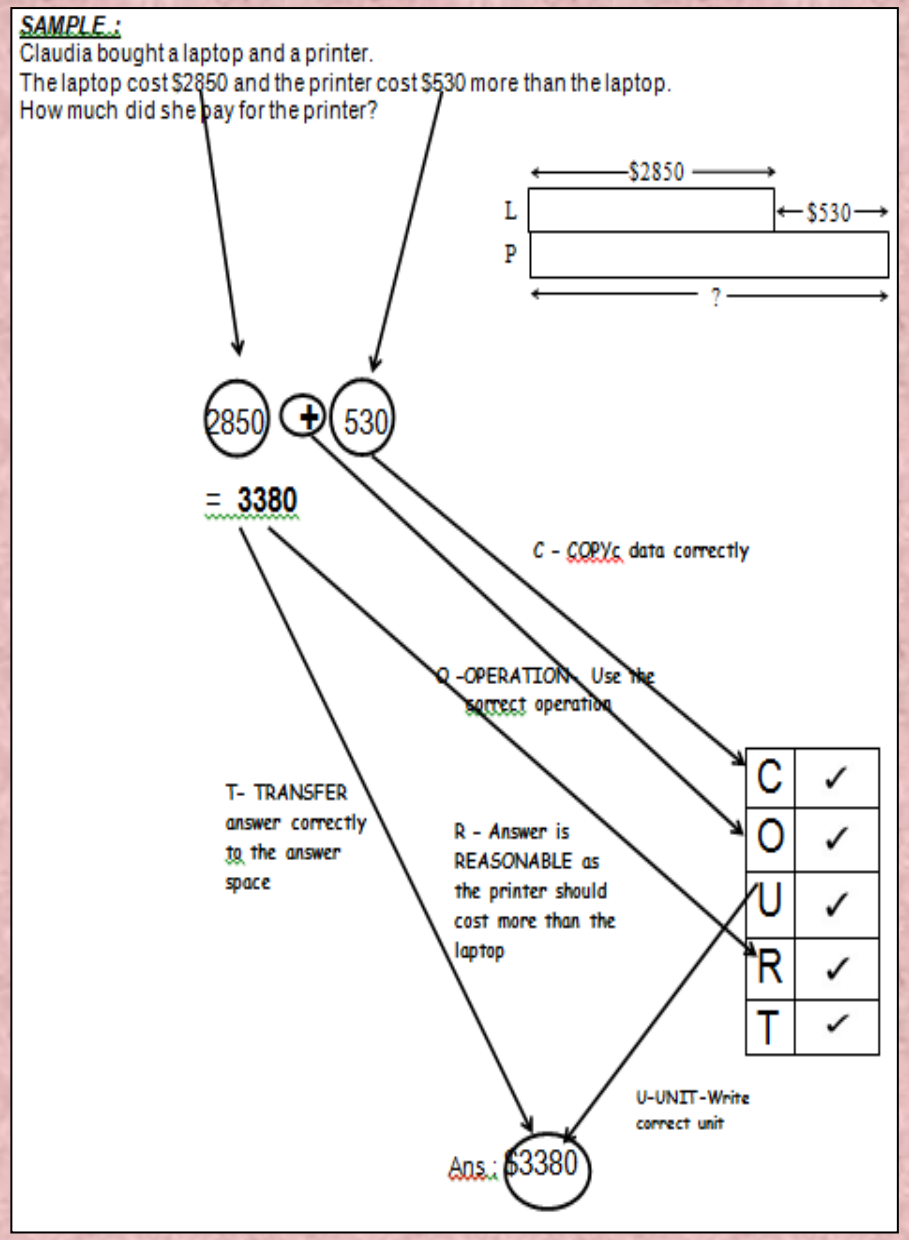
Think (What is my plan?)

Can I use Model Drawing?
Can I look for a pattern?
Can I work backwards?
Can I use Guess and Check?
Other heuristic(s) I can use: _____

Act(What do I need to do?)

Relook(Reflect and Check)

CHECKING Strategy Using



C -O -U -R -T

C – Copy data correctly

O – Operation sign

U – Unit of measurement

R – Reasonableness of answer

T – Transfer answer correctly

C	✓
O	✓
U	✓
R	✓
T	✓

Problem Solving using Model Drawing

1. Part-Whole Model
2. Comparison Model (2 Variables)
3. Comparison Model (3 Variables)
4. Unitary Method
5. Stacking Model
6. Fraction of a Set
7. Before and After

Q1: Model Drawing (Part-Whole) – Find Total

Aaron has 452 cards. Benedict has 373 cards.
How many cards do they have altogether?

See (What is given?)
Aaron → 452
Benedict → 373
Altogether?

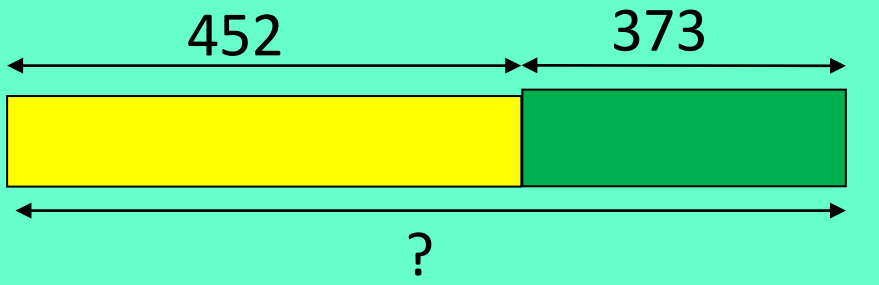
Think (What is my plan?)
- ✓ Can I use Model Drawing?
- Can I look for a pattern?
- Can I work backwards?
- Can I use Guess and Check?
- Other heuristic(s) I can use:

_____

Q1: Model Drawing (Part-Whole) – Find Total

See (What is given?)
Aaron → 452
Benedict → 373
Altogether?

Act (What do I need to do?)



Method
452 + 373 = 825

They have **825 cards** altogether.

Q1: Model Drawing (Part-Whole) – Find Total

Aaron has 452 cards. Benedict has 373 cards.
How many cards do they have altogether?

Act
Method
452 + 373 = 825

Relook (Reflect and Check)
$825 - 373 = $452 ✓ok

C	✓
O	✓
U	✓
R	✓
T	✓

Q2: Model Drawing (Part-Whole) – Find Part

Rachel and Sally have 263 hair clips altogether.
Sally has 91 hair clips.
How many hair clips does Rachel have?

See (What is given?)
Rachel & Sally → 263
Sally → 91
Rachel ?

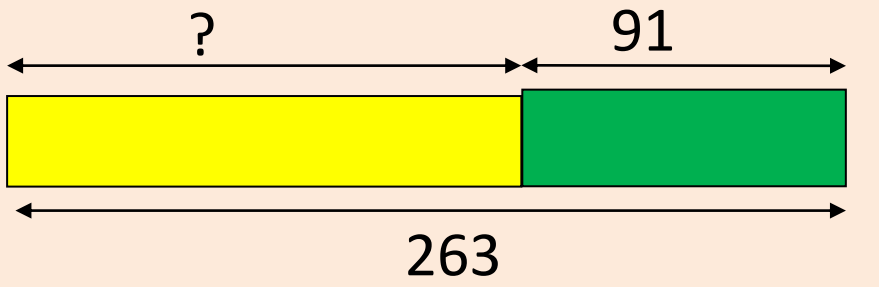
Think (What is my plan?)
- ✓ Can I use Model Drawing?
- Can I look for a pattern?
- Can I work backwards?
- Can I use Guess and Check?
- Other heuristic(s) I can use:

_____

Q2: Model Drawing (Part-Whole) – Find Part

See (What is given?)
Rachel & Sally → 263
Sally → 91
Rachel ?

Act (What do I need to do?)



Method
263 – 91 = 172

Rachel has **172 paper clips.**

Q2: Model Drawing (Part-Whole) – Find Part

Rachel and Sally have 263 hair clips altogether.
Sally has 91 hair clips.
How many hair clips does Rachel have?

Act
Method
263 – 91 = 172

Relook (Reflect and Check)
172 + 91= 263 ✓ok

C	✓
O	✓
U	✓
R	✓
T	✓

Q3: Model Drawing (Comparison with 2 variables) – Finding Difference

Hotel Pan Pacific Singapore charges $330 per night. Hotel Amara Singapore charges $198 per night. How much will Fes save if he decides to stay in Amara Singapore instead of Pan Pacific Singapore for three nights?

See (What is given?)
Pan Pacific → $330
Amara → $198
Save?

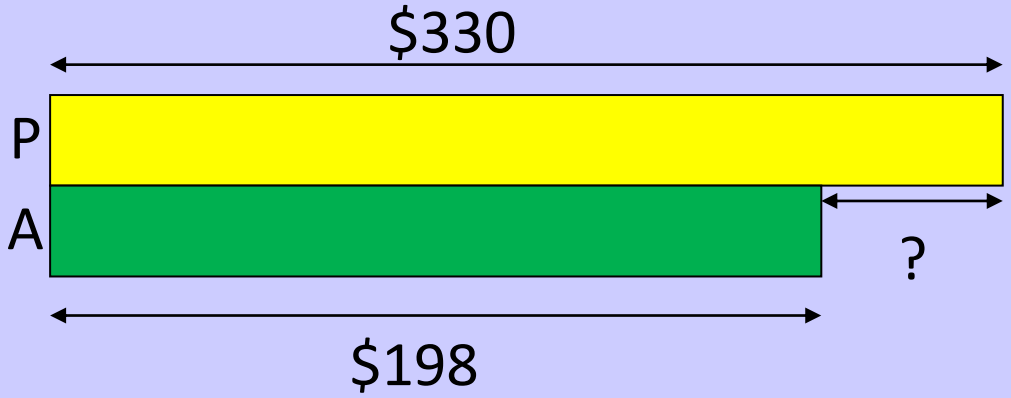
Think (What is my plan?)
- ✓ Can I use Model Drawing?
- Can I look for a pattern?
- Can I work backwards?
- Can I use Guess and Check?
- Other heuristic(s) I can use:

_____

Q3: Model Drawing (Comparison with 2 variables) – Finding Difference

See (What is given?)
Pan Pacific → $330
Amara → $198
Save?

Act (What do I need to do?)



Method 1
$330 - $198 = $132
$132 x 3 = **$396**

Fes will save **$396**.

Method 2
$330 x 3 = $990
$198 x 3 = $594
$990 - $594 = **$396**

Q3: Model Drawing (Comparison with 2 variables) – Finding Difference

Hotel Pan Pacific Singapore charges $330 per night. Hotel Amara Singapore charges $198 per night. How much will Fes save if he decides to stay in Amara Singapore instead of Pan Pacific Singapore for three nights?

Act

Method 2

$330 x 3 = $990

$198 x 3 = $594

$990 - $594 = **$396**

Relook (Reflect and Check)

$396 + $594 = $990

$594 ÷ 3 = $198

$990 ÷ 3 = $330 ✓ok

C	✓
O	✓
U	✓
R	✓
T	✓

Fes will save **$396**.

Q4: Model Drawing
(Comparison with 2 variables – Unequal Distribution)

At a factory, Worker A and Worker B sorted 1886 plastic bottles altogether. Worker B sorted 988 more bottles than Worker A. How many bottles did Worker A sort?

See (What is given?)

A + B → 1886

B → 988 more than A

Qn: A?

Think (What is my plan?)

✓ Can I use Model Drawing?

Can I look for a pattern?

Can I work backwards?

Can I use Guess and Check?

Other heuristic(s) I can use:

_____

Q4: Model Drawing
(Comparison with 2 variables – Unequal Distribution)

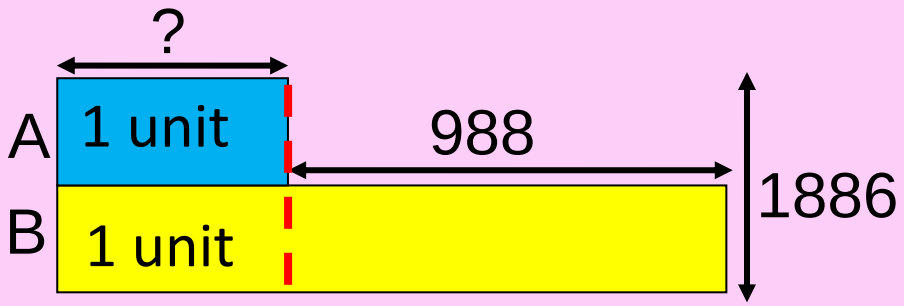
See (What is given?)

A + B → 1886

B → 988 more than A

Qn: A?

Act (What do I need to do?)



1886 - 988 = 898

2 units = 898

1 unit = 898 ÷ 2

= **449**

Worker A sorted **449** bottles in the morning.

Q4: Model Drawing
(Comparison with 2 variables – Unequal Distribution)

At a factory, Worker A and Worker B sorted 1886 plastic bottles altogether. Worker B sorted 988 more bottles than Worker A. How many bottles did Worker A sort?

Act

1886 - 988 = 898

2 units = 898

1 unit = 898 ÷ 2

= **449**

Relook (Reflect and Check)

1 unit = **449**

2 units = 449 x 2

= 898

898 + 988 = 1886 ✓ok

C	✓
O	✓
U	✓
R	✓
T	✓

Worker A sorted **449** bottles in the morning.

Q5: Model Drawing (Comparison with 3 variables)

Mr Li saved $5304 in January. He saved $1509 more in February than in January. He also saved $357 more in March than in February. How much did he save in March?

See (What is given?)

J → $5304

F→ $1509 more than J

M → $357 more than F

Qn: M saved ?

Think (What is my plan?)

✓ Can I use Model Drawing?

Can I look for a pattern?

Can I work backwards?

Can I use Guess and Check?

Other heuristic(s) I can use:

_____

Q5: Model Drawing (Comparison with 3 variables)

See (What is given?)

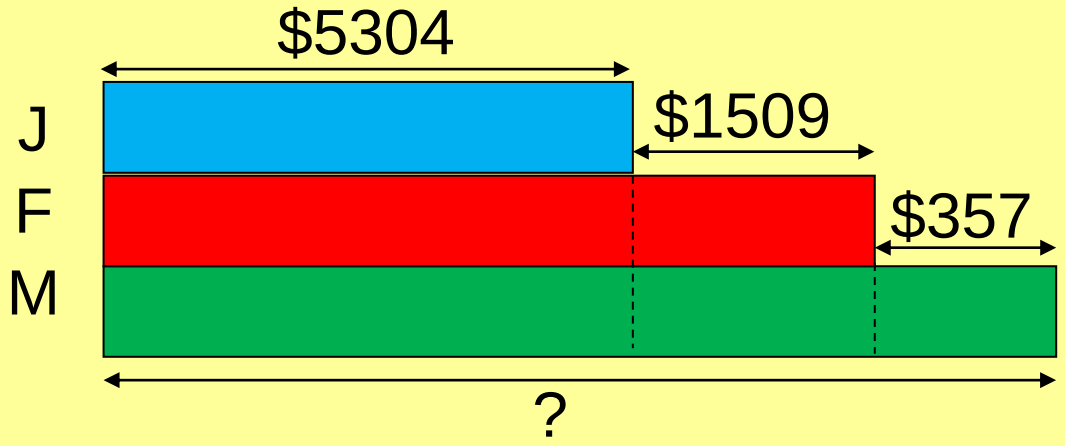
J → $5304

F→ $1509 more than J

M → $357 more than F

Qn: M saved ?

Act (What do I need to do?)



$5304 + $1509 = $6813

$6813 + $357 = **$7170**

He saved **$7170** in March.

Q5: Model Drawing (Comparison with 3 variables)

Mr Li saved $5304 in January. He saved $1509 more in February than in January. He also saved $357 more in March than in February. How much did he save in March?

Act

$5304 + $1509 = $6813

$6813 + $357 = **$7170**

Relook (Reflect and Check)

$7170 - $357 = $6813

$6813 - $1509 = $5304 ✓ok

He saved **$7170** in March.

C	✓
O	✓
U	✓
R	✓
T	✓

Q6: Model Drawing
(Comparison with 3 variables – *Hidden Part*)

Jimmy paid $3480 for a laptop, camera and printer. The laptop cost $450 more than the camera. The camera cost $300 more than the printer. How much did he pay for the laptop?

See (What is given?)

L + C + P → $3480

L → $450 + C

C → $300 + P

Qn: Laptop ?

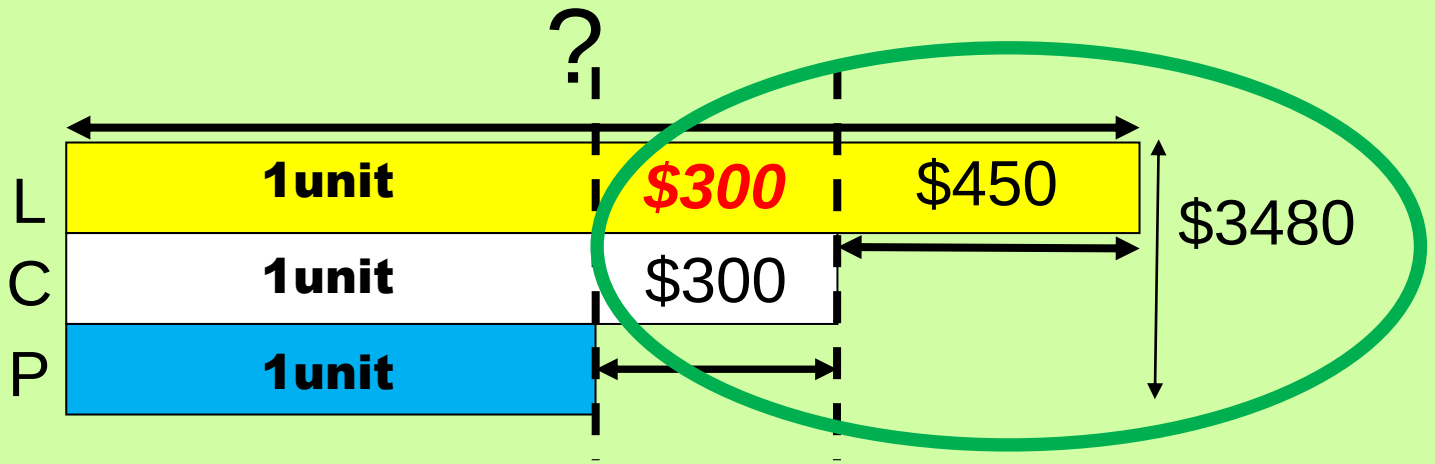
Think (What is my plan?)

- ✓ Can I use Model Drawing?
- Can I look for a pattern?
- Can I work backwards?
- Can I use Guess and Check?
- Other heuristic(s) I can use:

_____

Q6: Model Drawing
(Comparison with 3 variables – *Hidden Part*)

Act (What do I need to do?)



$3480 - $450 - $300 - $300 = ***$2430***

3u* = *$2430

1u = $2430 ÷ 3 = $810

Laptop → $810 + $300 + $450 = **$1560**

He paid **$1560** for the laptop.

Q6: Model Drawing
(Comparison with 3 variables – *Hidden Part*)

Relook (Reflect and Check)

$1560 - $450 = $1110 (A camera)

$1110 - $300 = $810 (A printer)

$1560 + $1110 + $810 = $3480 (altogether)

✓ok

C	✓
O	✓
U	✓
R	✓
T	✓

Q7: Unitary Method (Find Total)

Alex ran 234 m. Roy jogged thrice the distance ran by Alex. What was the total distance run by both Alex and Roy?

See (What is given?)

Alex → 234 m

Roy → 3x the distance ran by Alex

Qn: Total distance ran?

Think (What is my plan?)

- ✓ Can I use Model Drawing?
- Can I look for a pattern?
- Can I work backwards?
- Can I use Guess and Check?
- Other heuristic(s) I can use:

_____

Q7: Unitary Method (Find Total)

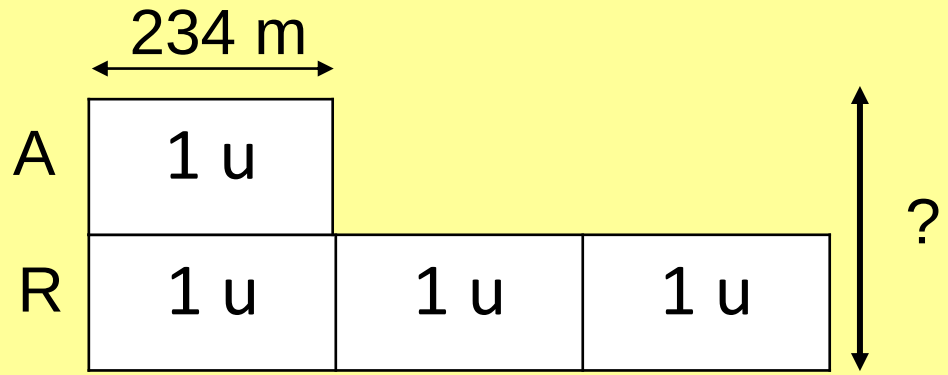
See (What is given?)

Alex → 234 m

Roy → 3x the distance ran by Alex

Qn: Total distance ran?

Act (What do I need to do?)



Method 1

1 u = 234 m

3 u = 3 x 234 m

= 702 m

234 m + 702 m = 936 m

Method 2

1 u = 234 m

4 u = 4 x 234 m

= 936 m

They ran **936 m** altogether.

Q7: Unitary Method (Find Total)

Alex ran 234 m. Roy jogged thrice the distance ran by Alex. What is the total distance ran by both Alex and Roy?

Act

Method 1

234 m x 3 = 702 m

234 m + 702 m

= 936 m

Relook (Reflect and Check)

Total → **936 m**

Roy →936 - 234 = 702m

Alex → 702m ÷ 3

= 234m ✓ok

They ran **936 m** altogether.

C	✓
O	✓
U	✓
R	✓
T	✓

Q8: Unitary Method

A bookshop sold 212 pencils and pens in a day. The number of pens sold was thrice the number of pencils sold. How many pencils were sold ?

See (What is given?)

Pencils and Pens → 212

Pens → 3x as many as Pencils

Qn: ? Pencils were sold

Think (What is my plan?)

- ✓ Can I use Model Drawing?
- Can I look for a pattern?
- Can I work backwards?
- Can I use Guess and Check?
- Other heuristic(s) I can use:

_____

Q8: Unitary Method

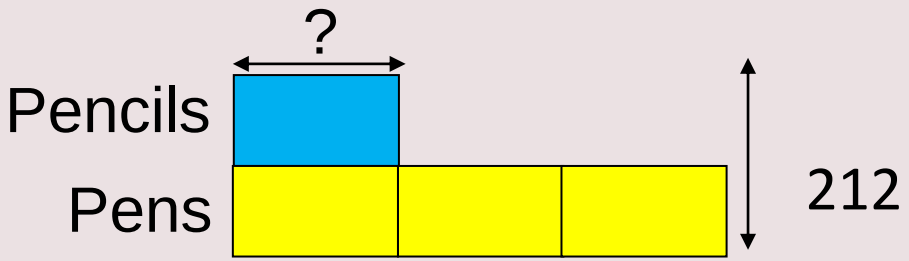
See (What is given?)

pencils and pens → 212

pens → 3x as many as pencils

Qn: ? Pencils were sold

Act (What do I need to do?)



Method

4 u = 212

1 u = 212 ÷ 4

= **53**

53 pencils were sold.

Q8: Unitary Method

A bookshop sold 212 pencils and pens in a day. The number of pens sold was thrice the number of pencils sold. How many pencils were sold ?

Act

Method

4 u = 212

1 u = 212 ÷ 4

= **53**

Relook (Reflect and Check)

1 u = **53**

4 u = 4 x 53

= 212 ✓ok

C	✓
O	✓
U	✓
R	✓
T	✓

53 pencils were sold.

Q9: Model Drawing (Stacking Model)

A pair of shoes and 3 bags cost $60. The pair of shoes cost twice as much as the bag. Find the cost of the pair of shoes.

See (What is given?)

1S + 3B → $60

1S → 1B x 2

Qn: 1S ?

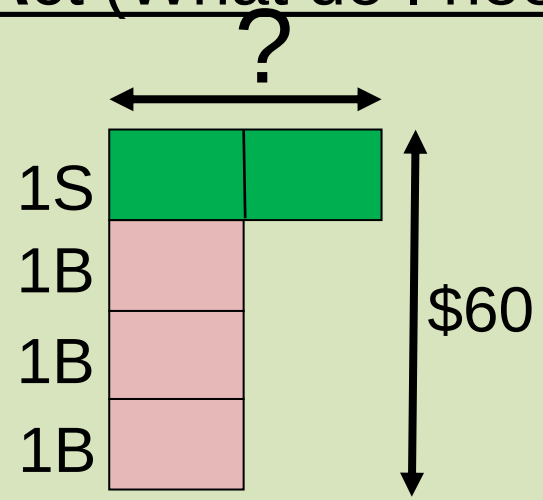
Think (What is my plan?)

- Can I use Part-Whole Model Drawing?
- Can I use Comparison Model Drawing?
- Can I use Stacking method? ✓
- Can I act it out?
- Can I use Guess and Check?
- Can I use Working Backwards?
- Other heuristic(s) I can use:

_____

Q9: Model Drawing (Stacking Model)

Act (What do I need to do?)



5u = $60

1u = $60 ÷ 5 = $12

2u = $12 x 2 = **$24**

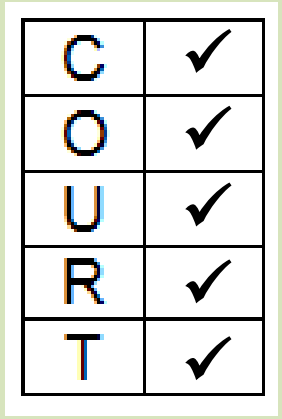
The pair of shoes cost **$24**.

Q9: Model Drawing (Stacking Model)

Relook (Reflect and Check)

$24 + $12 + $12 + $12 = $60

✓ok



Q10: Model Drawing (Stacking Model)

Mr Koh paid $1145 for a dining table and 4 chairs.

The table cost $270 more than each chair.

What was the cost of each chair?

See (What is given?)

1T + 4C → $1145

1T → 1C + $270

Qn: 1C ?

Think (What is my plan?)

Can I use Part-Whole Model Drawing?

Can I use Comparison Model Drawing?

Can I use Stacking method? ✓

Can I act it out?

Can I use Guess and Check?

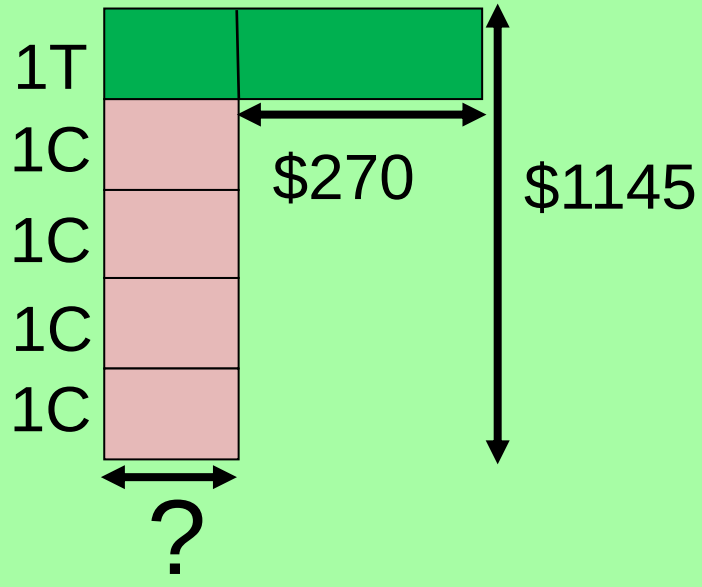
Can I use Working Backwards?

Other heuristic(s) I can use:

_____

Q10: Model Drawing (Stacking Model)

Act (What do I need to do?)



5u = $1145 – $270
= $875
1u = $875 ÷ 5
= $175

A chair cost **$175**.

Q10: Model Drawing (Stacking Model)

Relook (Reflect and Check)

Table -> $175 + $270

= $445

4 chairs -> 4 x $175

= $700

Total cost -> $445 + $700

= $1145 ✓ok

C	✓
O	✓
U	✓
R	✓
T	✓

Q11: Model Drawing (Fraction of a Set)

Annie baked 252 cookies. $\frac{4}{7}$ of the cookies were chocolate cookies and the rest were butter cookies. How many butter cookies did she bake?

See (What is given?)

Total → 252 cookies

Chocolate → $\frac{4}{7}$ of the cookies

Rest → Butter cookies

Qn: Number of butter cookies?

Think (What is my plan?)

Model drawing ✓

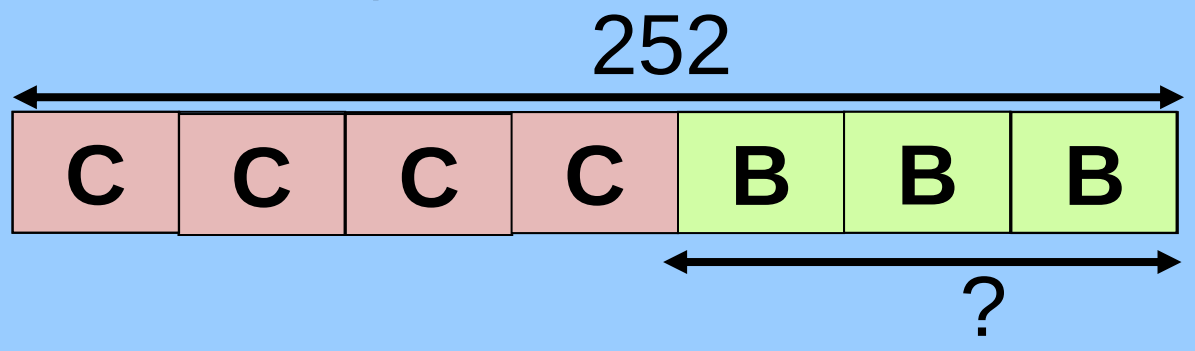
Working backwards

Restate the problem

Stacking Method

Q11: Model Drawing (Fraction of a Set)

Act (What do I need to do?)



7 u = 252

1 u = 252 ÷ 7 = 36

3 u = 36 x 3 = **108**

She baked **108** butter cookies.

Q11: Model Drawing (Fraction of a Set)

Relook (Reflect and Check)

108 ÷ 3 = 36

36 x 7 = 252

✓ok

C	✓
O	✓
U	✓
R	✓
T	✓

Q12: Model Drawing (Fraction of a Set)

Mrs Liz had a birthday party. $\frac{3}{5}$ of the children were girls. There were 36 boys at the party. How many children were there altogether?

See (What is given?)

Girls → $\frac{3}{5}$ of the children

Boys → 36

Qn: total number of children ?

Think (What is my plan?)

Model drawing ✓

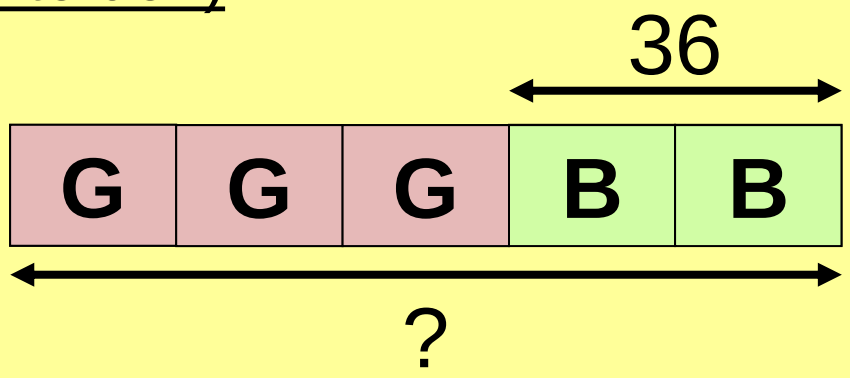
Working backwards

Restate the problem

Stacking Method

Q12: Model Drawing (Fraction of a Set)

Act (What do I need to do?)



2 u = 36

1 u = 36 ÷ 2 = 18

5 u = 18 x 5 = **90**

There were **90** children altogether.

Q12: Model Drawing (Fraction of a Set)

Relook (Reflect and Check)

90 ÷ 5 = 18

18 x 2 = 36

✓ok

C	✓
O	✓
U	✓
R	✓
T	✓

Q13: Model Drawing (Before and After) – Make Equal

Samy has 250 erasers and Darryl has 64 erasers. How many erasers must Samy give to Darryl so that both have the same number of erasers?

See (What is given?)

S → 250

D → 64

S give ? to D so that S = D

Think (What is my plan?)

✓ Can I use Model Drawing?

Can I look for a pattern?

Can I work backwards?

Can I use Guess and Check?

Other heuristic(s) I can use:

_____

Q13: Model Drawing (Before and After) – Make Equal

See (What is given?)

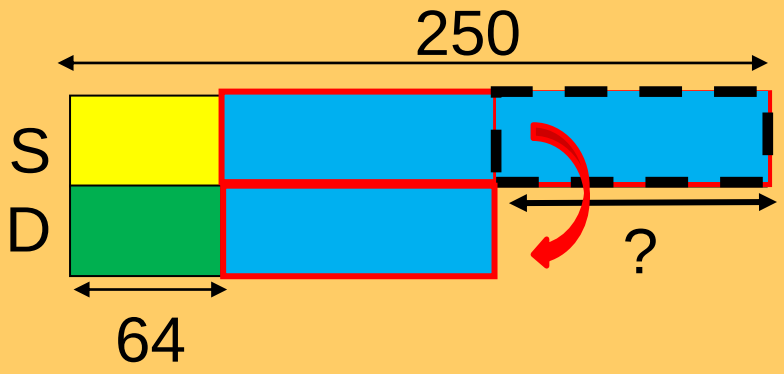
S → 250

D → 64

S give ? to D so that

S = D

Act (What do I need to do?)



250 - 64 = 186

186 ÷ 2 = **93**

Samy must give Darryl **93** erasers.

Q13: Model Drawing (Before and After) – Make Equal

Samy has 250 erasers and Darryl has 64 erasers. How many erasers must Samy give to Darryl so that both have the same number of erasers?

Act

250 - 64 = 186

186 ÷ 2 = 93

Relook (Reflect and Check)

250 + 64 = 314

314 ÷ 2 = 157

250 – **93** = 157

64 + **93** = 157 ✓ok

C	✓
O	✓
U	✓
R	✓
T	✓

Samy must give Darryl **93** erasers.

Q14: Restate the Problem

The total cost of 1 box of mangoes and 1 box of papayas is $32.
The total cost of 1 box of mangoes and 3 boxes of papayas is $56.
What is the cost of 3 boxes of papayas?

See (What is given?)
1 M + 1P → $32
1 M + 3P → $56
Qns: 3P ?

Think (What is my plan?)
Model drawing
Working backwards
Restate the problem ✓
Stacking Method

Q14: Restate the Problem

The total cost of 1 box of mangoes and 1 box of papayas is $32.
The total cost of 1 box of mangoes and 3 boxes of papayas is $56.
What is the cost of 3 boxes of papayas?

Act (What do I need to do?)
1 M + 1P → $32
1 M + 3P → $56

2P → $56 - $32 = $24
1P → $24 ÷2 = $12
3P → $12 x 3 = **$36**

The cost of 3 boxes of papayas cost **$36**.

Q14: Restate the Problem

The total cost of 1 box of mangoes and 1 box of papayas is $32.
The total cost of 1 box of mangoes and 3 boxes of papayas is $56.
What is the cost of 3 boxes of papayas?

Relook (Reflect and Check)
$56 - $36 = $20 (1M)
$20 + $12 = $32

✓ok

C	✓
O	✓
U	✓
R	✓
T	✓

The cost of 3 boxes of papayas cost **$36**.

Other Matters

1) Kindly scan the QR code to provide your feedback for the workshop.

   https://forms.moe.edu.sg/forms/JqyEQJ

2) Slides shared will be uploaded onto the school website next week.

Thank you for attending our presentation