MATH WORKSHOP

For Parents

8 April 2022

By: Mrs Tay Yuyan

Inspiring Excellence
PALM VIEW PRIMARY

PROBLEM SOLVING

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Solving problems to learn math

PROBLEM SOLVING STRATEGIES

READ 

IDENTIFY KEYWORDS 

GET A PLAN 

HAVE IT DONE 

TRIPLE CHECK 

MEWAS

- Model
- Equation
- Working
- Answer
- Statement

NTUC

- Number
- Transfer
- Units
- Calculation

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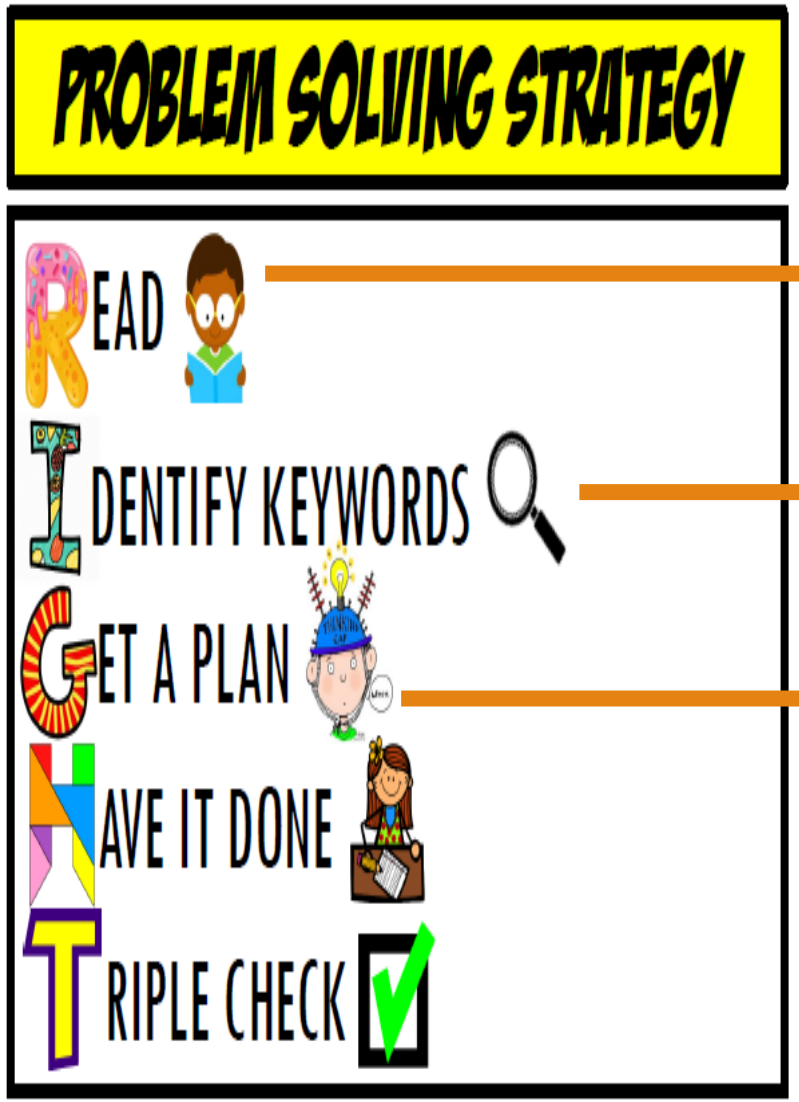

Topic

Type of question

Heuristics

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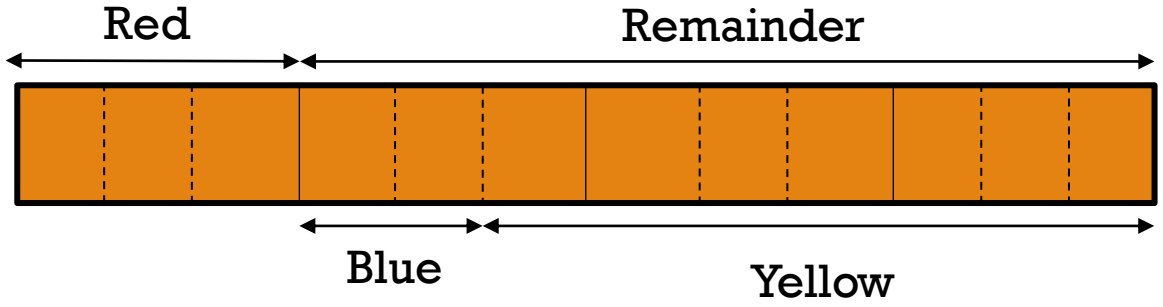
QUESTION 1

PSLE 2017 PAPER 1 Q28 (2 MARKS)

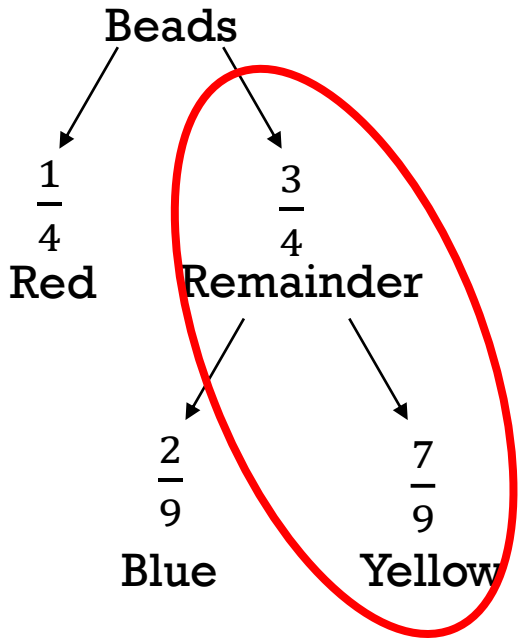
A box contains red, blue and yellow beads. $\frac{1}{4}$ of the beads are red. $\frac{2}{9}$ of the remaining beads are blue. What fraction of the beads in the box are yellow?

Read	→ Topic	→ Fractions
Identify keywords	→ Type of qns	→ Remainder concept
Get a plan	→ Heuristics	→ Model / Branching

A box contains red, blue and yellow beads. $\frac{1}{4}$ of the beads are red. $\frac{2}{9}$ of the remaining beads are blue. What fraction of the beads in the box are yellow?



$\frac{7}{12}$ of the beads in the box are yellow.



$$\frac{7}{9} \times \frac{3}{4} = \frac{7}{12}$$

$\frac{7}{12}$ of the beads in the box are yellow.

QUESTION 2

PSLE 2020 PAPER 2 Q17 (5 MARKS)

Mrs Wu spent $\frac{1}{6}$ of her money on a dress and 2 blouses. The dress cost 3 times as much as each blouse. Mrs Wu spent $\frac{3}{4}$ of her remaining money on a watch. She spent $220.50 more on the watch than on the dress.

(a) What fraction of Mrs Wu's money was spent on each blouse?

(b) How much money did Mrs Wu have at first?

QUESTION 2

PSLE 2020 PAPER 2 Q17 (5 MARKS)

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Read	Topic	Fractions / Money
Identify keywords	Type of qns	Remainder concept
Get a plan	Heuristics	Model / Branching

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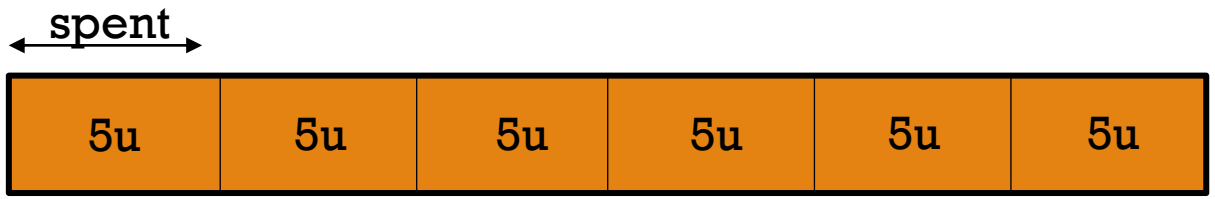
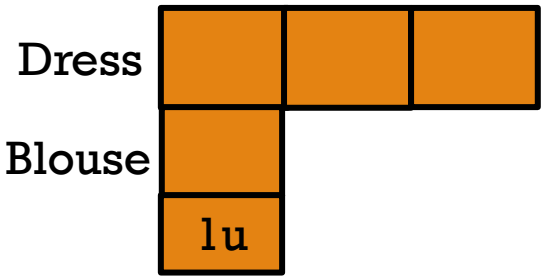
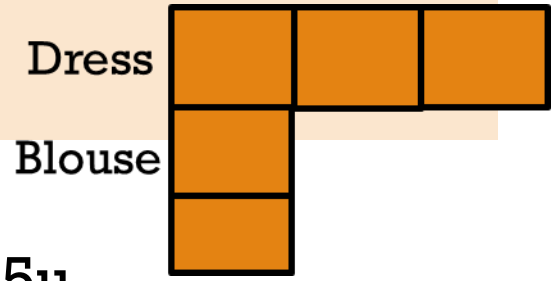


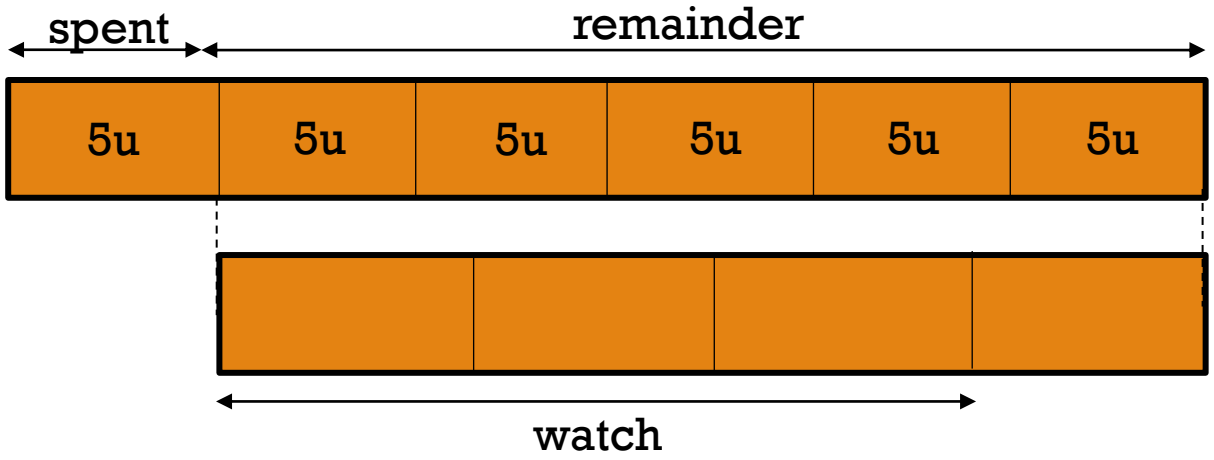


(a) $\frac{1}{30}$ of Mrs Wu's money was spent on each blouse.

Mrs Wu spent $\frac{1}{6}$ of her money on a dress and 2 blouses. The dress cost 3 times as much as each blouse. Mrs Wu spent $\frac{3}{4}$ of her remaining money on a watch. She spent $220.50 more on the watch than on the dress.

(b) How much money did Mrs Wu have at first?





(watch) $\frac{3}{4}$ x 25u = 18.75u

(diff btw watch & dress) 18.75u – 3u

= 15.75u

15.75u = $220.50

1u = $220.50 ÷ 15.75

= $14

30u = $14 x 30

= $420

(b) Mrs Wu had **$420** at first.

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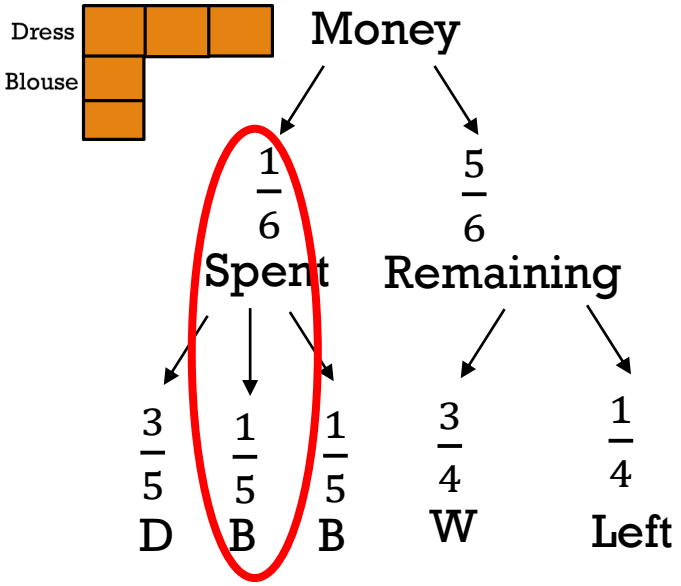
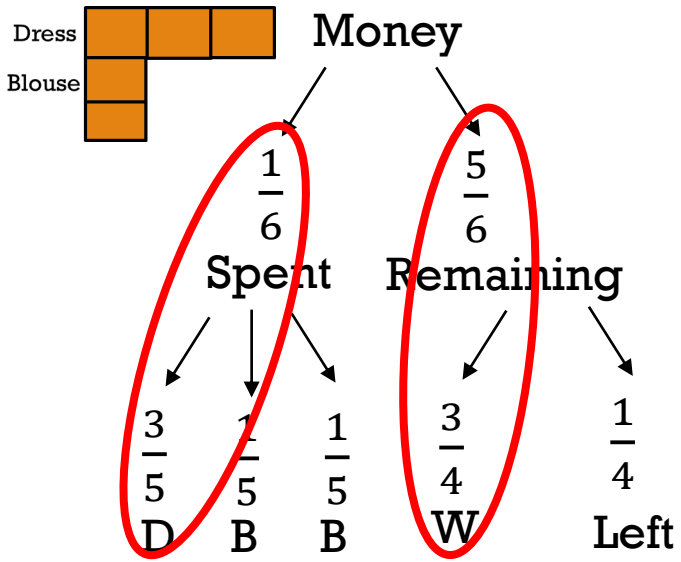


$$\frac{1}{5} \times \frac{1}{6} = \frac{1}{30}$$

(a) $\frac{1}{30}$ of Mrs Wu's money was spent on each blouse.

Mrs Wu spent $\frac{1}{6}$ of her money on a dress and 2 blouses. The dress cost 3 times as much as each blouse. Mrs Wu spent $\frac{3}{4}$ of her remaining money on a watch. She spent $220.50 more on the watch than on the dress.

(b) How much did Mrs Wu have at first?



(dress) $\frac{3}{5} \times \frac{1}{6} = \frac{1}{10}$

(watch) $\frac{3}{4} \times \frac{5}{6} = \frac{5}{8}$

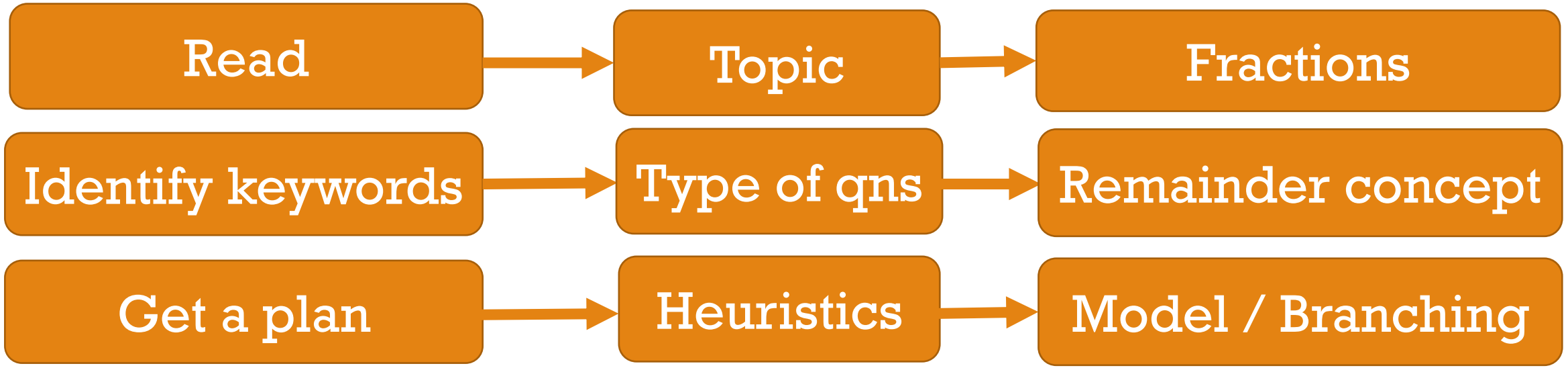
(diff btw watch & dress) $\frac{5}{8} - \frac{1}{10} = \frac{21}{40}$

$\frac{21}{40}$ of money = $220.50

$\frac{1}{40}$ of money = $220.50 ÷ 21 = $10.50

$\frac{40}{40}$ of money = $10.50 × 40 = $420

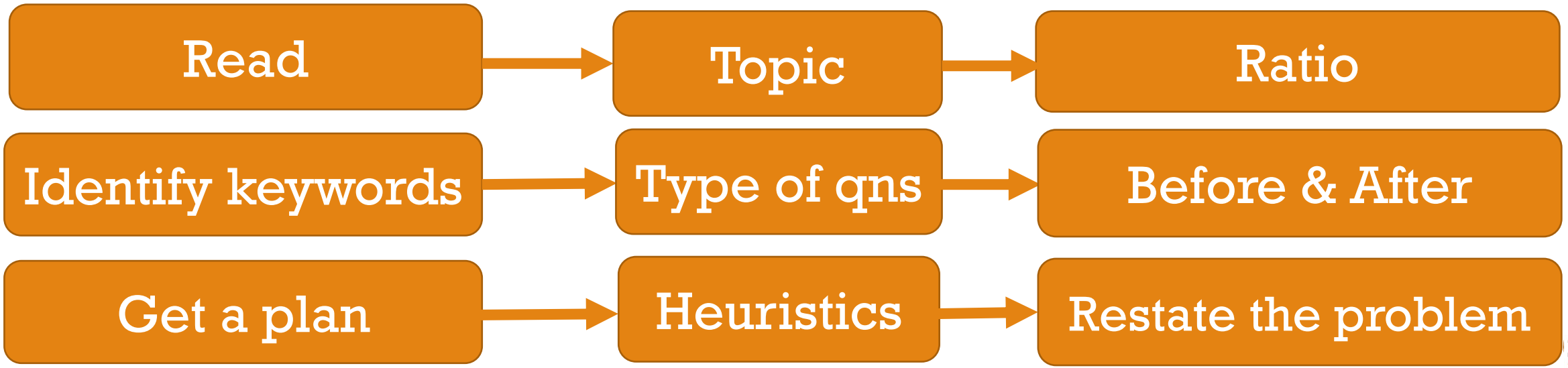
(b) Mrs Wu had **$420** at first.



QUESTION 3

PSLE 2012 PAPER 2 Q4 (2 MARKS)

The ratio of the number of angelfish to that of a clownfish in an aquarium was 5 : 4 at first. After 3 clownfish were sold, the ratio of the number of angelfish to that of clownfish became 4 : 3. What was the total number of clownfish in the aquarium at first?



The ratio of the number of angelfish to that of a clownfish in an aquarium was 5 : 4 at first. After 3 clownfish were sold, the ratio of the number of angelfish to that of clownfish became 4 : 3. What was the total number of clownfish in the aquarium at first?

What remained unchanged?

Before → 3 clownfish sold → After

Angelfish : Clownfish			Angelfish : Clownfish		
5	:	4	4	:	3
× 4 ↻ 20	:	16	20	:	15 ↺ × 5

1u = 3

16u = 16 x 3

= 48

The total number of clownfish at first was **48**.

QUESTION 4

PSLE 2019 PAPER 2 Q10 (3 MARKS)

At first, the ratio of the number of boys to the number of girls in a chess club was 4 : 1. After 6 boys and 6 girls joined the club, the ratio became 3 : 1.

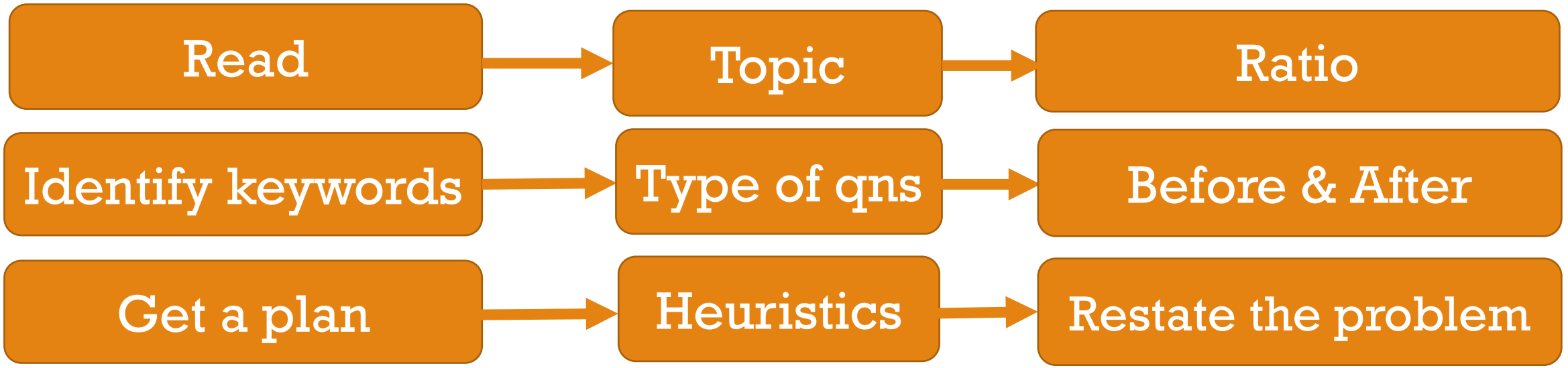
(a)Did the percentage of members who are boys increase, decrease or remain the same? Show your working clearly.

(b) In the end, how many boys were there in the club?

QUESTION 4

PSLE 2019 PAPER 2 Q10 (3 MARKS)

At first, the ratio of the number of boys to the number of girls in a chess club was 4 : 1. After 6 boys and 6 girls joined the club, the ratio became 3 : 1.



At first, the ratio of the number of boys to the number of girls in a chess club was 4 : 1. After 6 boys and 6 girls joined the club, the ratio became 3 : 1.

(a) Did the percentage of members who are boys increase, decrease or remain the same? Show your working clearly.

What remained unchanged?

<u>Before</u> → (6 boys joined, 6 girls joined) → <u>After</u>

Before				After		
Boys	:	Girls	: Diff	Boys	:	Girls	: Diff
4	:	1	: 3	3	:	1	: 2
8	:	2	: 6	9	:	3	: 6

× 2 (Boys and Girls) × 3 (Boys and Girls)

$\frac{8}{10} \times 100\% = 80\%$

$\frac{9}{12} \times 100\% = 75\%$

(a) The percentage of members who are boys **<u>decreased</u>**.

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At first, the ratio of the number of boys to the number of girls in a chess club was 4 : 1. After 6 boys and 6 girls joined the club, the ratio became 3 : 1.

(b) In the end, how many boys were there in the club?

What remained unchanged?

<u>Before</u> → (6 boys joined, 6 girls joined) → <u>After</u>

Before					After			
Boys	:	Girls	:	Diff	Boys	:	Girls	: Diff
4	:	1	:	3	3	:	1	: 2
× 2								× 3
8	:	2	:	6	9	:	3	: 6

1u = 6

9u = 9 x 6

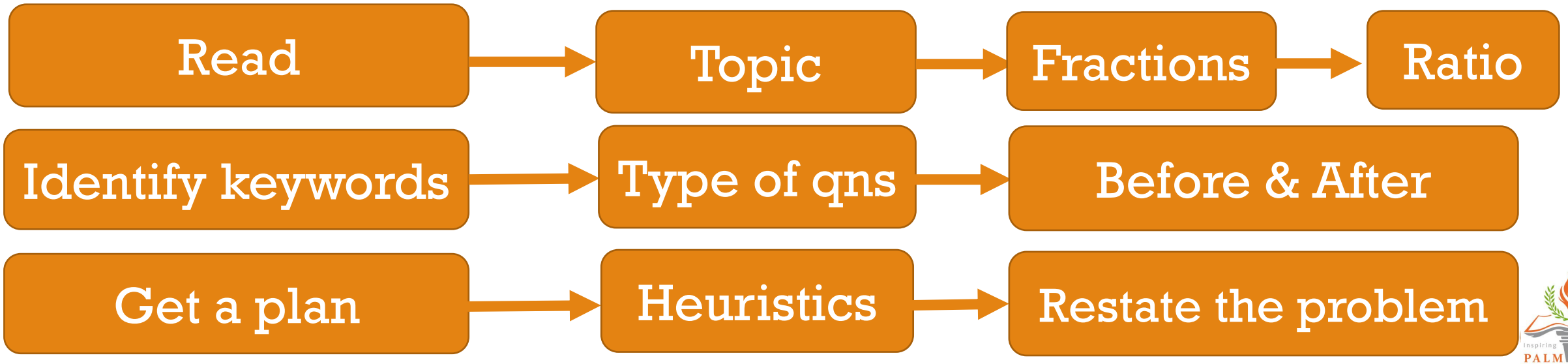
= 54

(b) In the end, there were **<u>54</u>** boys in the club.

QUESTION 5

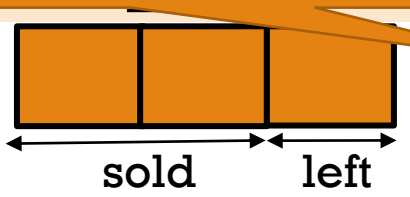
PSLE 2014 PAPER 2 Q13 (3 MARKS)

Mr Lim had a total of 540 long and short rulers. After selling an equal number of both types, he had $\frac{1}{3}$ of the long rulers and $\frac{1}{6}$ of the short ones left. What was the total number of rulers left?



Mr Lim had a total of 540 long and short rulers. After selling an equal number of both types, he had $\frac{1}{3}$ of the long rulers and $\frac{1}{6}$ of the short ones left. What was the total number of rulers left?

What remained the same?



Before → sold equal number of long & short → After

Before

long & short

540

After

long

sold : left : total

2 : 1 : 3

× 5

10 : 5 : 15

short

sold : left : total

5 : 1 : 6

10 : 2 : 12

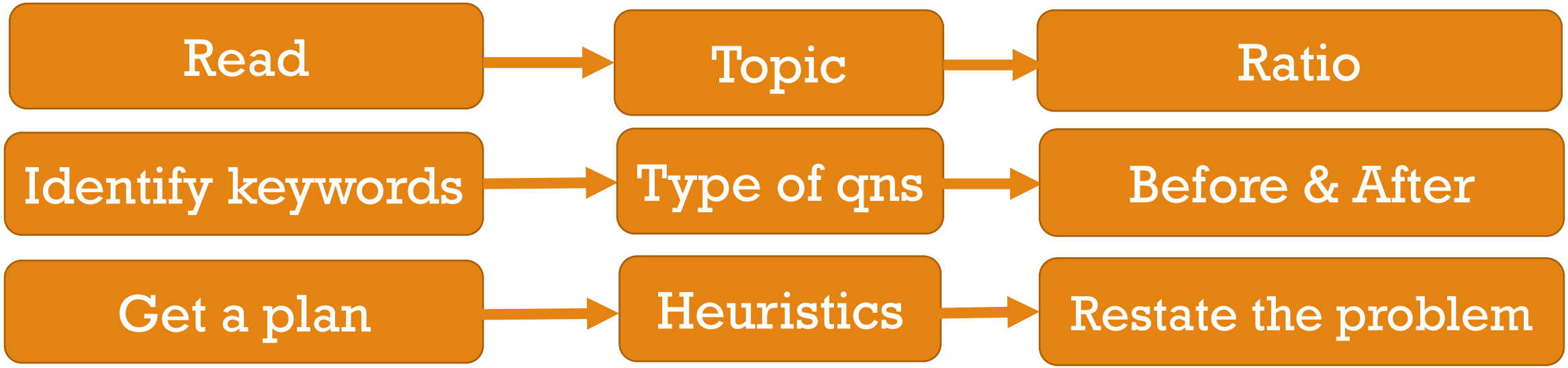
× 2

27u = 540

1u = 540 ÷ 27 = 20

7u = 7 x 20 = 140

The total number of rulers left was **140**.



What remained unchanged?

What remained the same?

QUESTION 6

PSLE 2017 PAPER 2 Q15 (4 MARKS)

At a walkathon, each participant completed either a 3-km route, a 5-km route or an 8-km route. $\frac{1}{4}$ of the participants completed the 3-km route, $\frac{9}{20}$ of the participants completed the 5-km route and the rest completed the 8-km route. For every 1 km a participant walked, $4 was donated to charity. A total of $8208 was donated to charity.

(a) What is the ratio of the number of participants who completed the 3-km route to the number who completed the 5-km route to the number who completed the 8-km route?

(b) What is the total number of participants at the walkathon?

QUESTION 6

PSLE 2017 PAPER 2 Q15 (4 MARKS)

At a walkathon, each participant completed either a 3-km route, a 5-km route or an 8-km route. $\frac{1}{4}$ of the participants completed the 3-km route, $\frac{9}{20}$ of the participants completed the 5-km route and the rest completed the 8-km route. For every 1 km a participant walked, $4 was donated to charity. A total of $8208 was donated to charity.

Read	Topic	Fractions
Identify keywords	Type of qns	Number x Value
Get a plan	Heuristics	Make a table

At a walkathon, each participant completed either a 3-km route, a 5-km route or an 8-km route. $\frac{1}{4}$ of the participants completed the 3-km route, $\frac{9}{20}$ of the participants completed the 5-km route and the rest completed the 8-km route. For every 1 km a participant walked, $4 was donated to charity. A total of $8208 was donated to charity.

(a) What is the ratio of the number of participants who completed the 3-km route to the number who completed the 5-km route to the number who completed the 8-km route?

3-km route → $\frac{1}{4}$ of participants = $\frac{5}{20}$ of participants

5-km route → $\frac{9}{20}$ of participants

8-km route → $1 - \frac{1}{4} - \frac{9}{20} = \frac{6}{20}$

The ratio is **5 : 9 : 6**.

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(b) What is the total number of participants at the walkathon?

	Number (No. of participants)	Value (Distance)	Total (Total distance)
3-km route	5u	1 participant = 3 km	5 x 3 km = 15 km
5-km route	9u	1 participant = 5 km	9 x 5 km = 45 km
8-km route	6u	1 participant = 8 km	6 x 8 km = 48 km

1 group
(No. of participants) 5 + 9 + 6 = 20
(Dist walked) 15 + 45 + 48 = 108

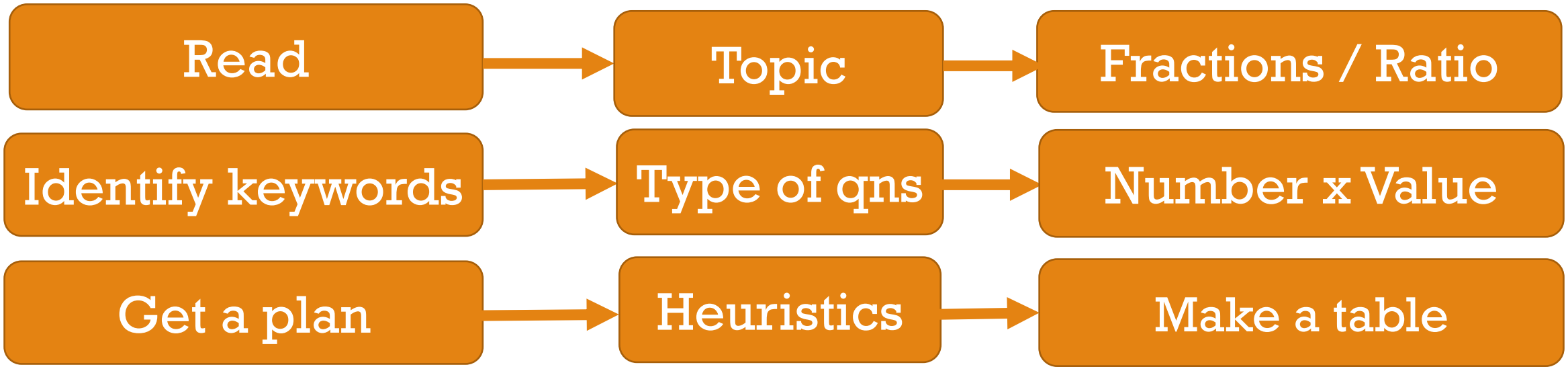
(Dist walked by all participants) $8208 ÷ $4 = 2052
(No. of groups) 2052 ÷ 108 = 19
(Total no. of participants) 19 × 20 = 380

The total number of participants at the walkathon is **380**.

QUESTION 7

PSLE 2020 PAPER 2 Q14 (3 MARKS)

Andy saved a total of $108 in coins in his coin box. $\frac{2}{3}$ of the coins saved were one-dollar coins. There were 3 times as many one-dollar coins as fifty-cent coins. The remaining coins were twenty-cent coins. How many coins did Andy save in the coin box altogether?



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$1 coins : 50-cent & 20-cent coins : total

2 : 1 : 3

× 3

6 : 3 : 9

$1 coins : 50-cent coins

3 : 1

× 2

6 : 2

$1 coins : 50-cent coins : 20-cent coins

6 : 2 : 1

	Number (No. of coins)	Value (Value of coins)	Total (Total value)
$1 coins	6u	1 coin = $1	6 x $1 = $6
50-cent coins	2u	1 coin = 50¢	2 x 50¢ = $1
20-cent coins	1u	1 coin = 20¢	1 x 20¢ = $0.20

<u>1 group</u>

(No. of coins) 6 + 2 + 1 = 9

(Value of coins) $6 + $1 + $0.20

= $7.20

(No. of groups) $108 ÷ $7.20 = 15

(Total no. of coins) 15 × 9 = 135

Andy saved **<u>135</u>** coins in the coin box altogether.

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QUESTION 8

PSLE 2021 PAPER 2 Q14 (4 MARKS)

The table shows the prices of tickets for a concert.

Type	Age	Price per ticket
Adult	Below 60 years	$16
	60 years and above	$11
Child	Below 16 years	$7

The number of adult tickets sold was 5 times the number of child tickets sold. $\frac{5}{8}$ of the adult tickets sold were for adults aged below 60 years. A total of $5589 was collected from the sale of tickets.

(a) What fraction of the tickets sold were for adults aged 60 years and above?

(b) What was the total number of tickets sold?

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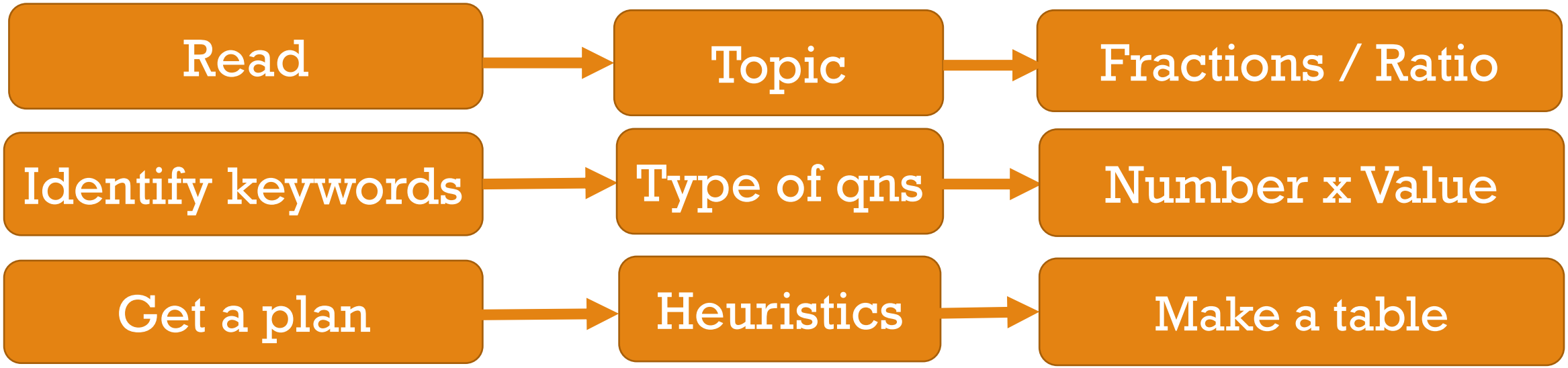

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(a) What fraction of the tickets sold were for adults aged 60 years and above?

adult : child

5 : 1

$\times 8$

40 : 8

Below 60 : 60 & above : adults

5 : 3 : 8

$\times 5$

25 : 15 : 40

Below 60 : 60 & above : child : total

25 : 15 : 8 : 48

$\frac{15}{48} = \frac{5}{16}$

(a) $\frac{5}{16}$ of the tickets sold were for adults aged 60 and above.

The table shows the prices of tickets for a concert.

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The number of adult tickets sold was 5 times the number of child tickets sold. $\frac{5}{8}$ of the adult tickets sold were for adults aged below 60 years. A total of $5589 was collected from the sale of tickets.

(b) What was the total number of tickets sold?

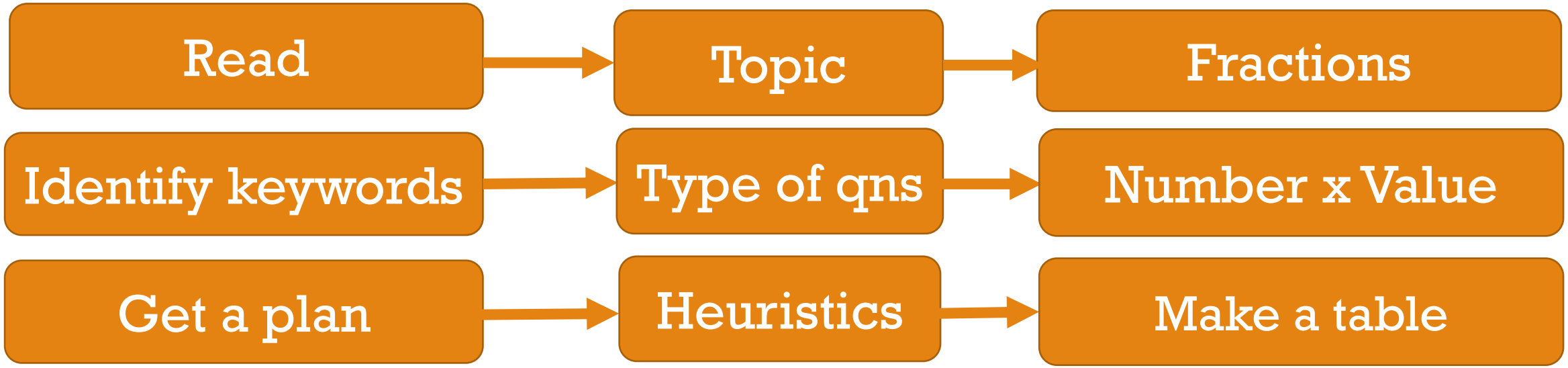
	Number (No. of tic)	Value (Value of tic)	Total (Total value)
Below 60	25u	1 ticket = $16	25 x $16 = $400
60 & above	15u	1 ticket = $11	15 x $11 = $165
Child	8u	1 ticket = $7	8 x $7 = $56

1 group
(No. of tic) 25 + 15 + 8 = 48
(Value of tic) $400 + $165 + $56 = $621

(No. of groups) $5589 ÷ $621 = 9

(Total no. of tic) 9 × 48 = 432

The total number of tickets sold was **432**.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MATH AROUND US

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Learning math to solve problems

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