



Primary 5
Model Approach
Lesson 7:
Conventional Model

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LESSON 7: Conventional Models

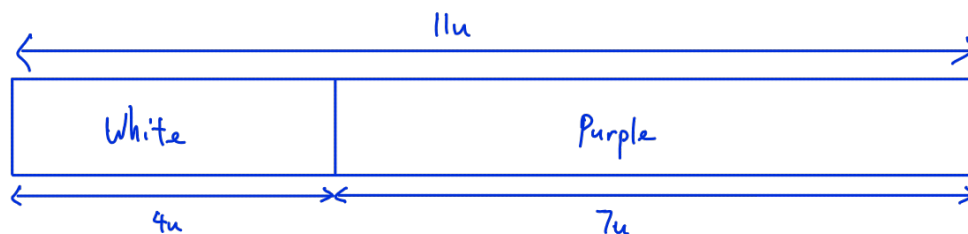
GUIDED EXAMPLE 1

A box contains white and purple marbles.

$\frac{4}{11}$ of the marbles are white.

There are 133 purple marbles in the box.

How many more purple marbles are there than white marbles?



$$\begin{aligned}
 7u &= 133 \\
 1u &= 133 \div 7 \\
 &= 19 \\
 7u - 4u &= 3u \\
 &= 3 \times 19 \\
 &= 57
 \end{aligned}$$

Ans : 57

GUIDED EXAMPLE 2

There were some marbles in a box.

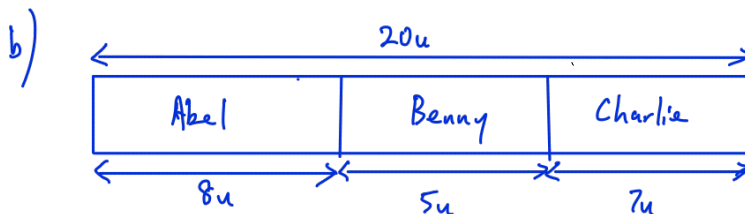
Abel took $\frac{2}{5}$ of the marbles,

Benny took $\frac{1}{4}$ of the marbles and Charlie took the rest.

- a) What fraction of the marbles did Charlie take?
- b) Given that Charlie took 42 more marbles than Benny, how many marbles did Abel take?

$$a) \quad \frac{2 \times 4}{5 \times 4} = \frac{8}{20}, \quad \frac{1 \times 5}{4 \times 5} = \frac{5}{20}$$

$$\frac{20}{20} - \frac{8}{20} - \frac{5}{20} = \frac{7}{20}$$



$$7u - 5u = 42$$

$$2u = 42$$

$$\times 4 \quad \downarrow \quad 8u = 4 \times 42$$

$$= 168$$

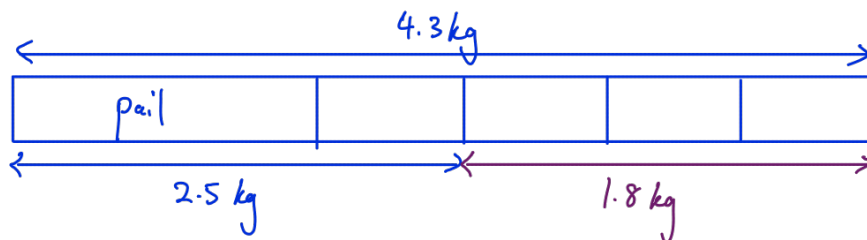
Ans : 168

GUIDED EXAMPLE 3

The mass of a pail is 4.3 kg when it is completely filled with sand.

The mass becomes 2.5 kg when $\frac{3}{4}$ of the sand in the pail is removed.

What is the mass of the pail when it is empty?



$$4.3 - 2.5 = 1.8$$

$$1.8 \div 3 = 0.6$$

$$2.5 - 0.6 = 1.9$$

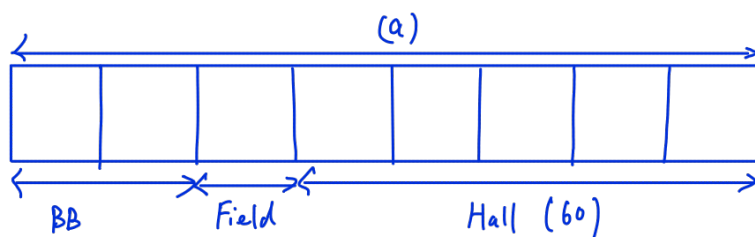
$$\text{Ans : } \underline{1.9 \text{ kg}}$$

GUIDED EXAMPLE 4

Some pupils were playing at different areas of the school.
 25% of them were playing at the basketball court.
 12.5% of them were playing in the school field.
 The remaining 60 pupils were playing in the indoor hall.

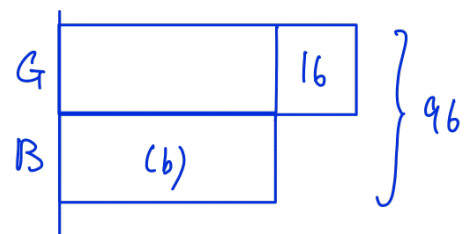
- a) How many pupils were there altogether?
- b) If there were 16 more girls than boys, how many boys were there?

$$25\% = \frac{25}{100} = \frac{1 \times 2}{4 \times 2} = \frac{2}{8} \quad , \quad 12.5\% = \frac{12.5}{100} = \frac{1}{8}$$



a) $60 \div 4 \times 8 = 96$

b) $(96 - 16) \div 2 = 40$



Ans : a) 96
 b) 40

GUIDED EXAMPLE 5

Andy wanted to buy a new television.

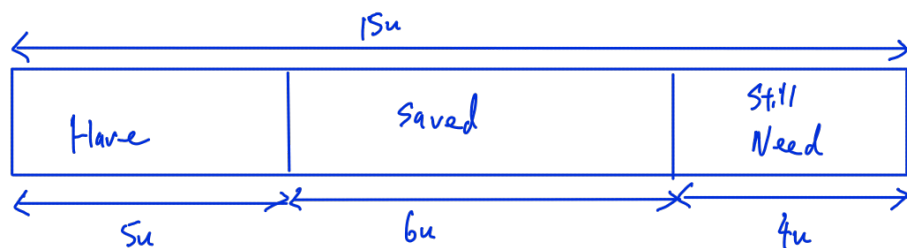
He only had $\frac{1}{3}$ of the amount needed to buy this television.

After he saved another \$300,

he still needed another $\frac{4}{15}$ of the total cost.

What was the cost of the television?

$$\frac{1}{3} \times 5 = \frac{5}{15}, \quad \frac{4}{15}$$



$$15u - 5u - 4u = 300$$

$$6u = 300$$

$$1u = 300 \div 6$$

$$= 50$$

$$15u = 15 \times 50$$

$$= 750$$

Ans : \$750

GUIDED EXAMPLE 6

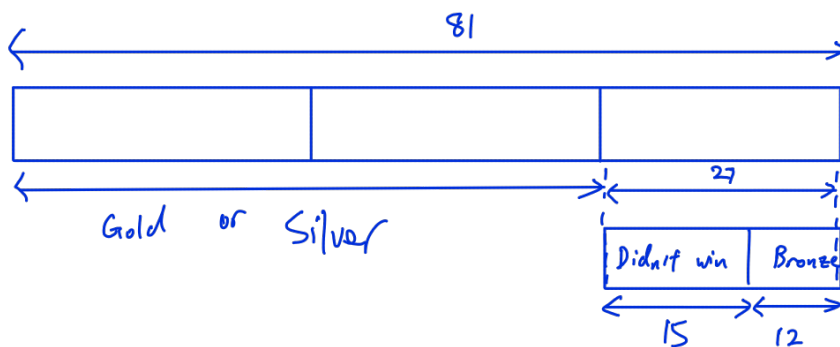
Last year, 81 pupils participated in a Science quiz where there were gold, silver or bronze awards to be won.

$\frac{2}{3}$ of the pupils won either a gold or a silver award.

12 of them won bronze awards.

How many pupils did not win any of the awards?

(Henry Park P5 SA2 Q5)



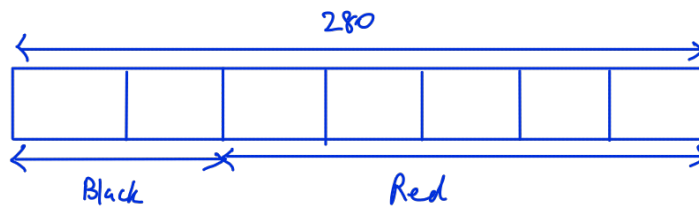
$$\frac{1}{3} \times 81 = 27$$

$$27 - 12 = 15$$

Ans : 15

BUILD YOUR UNDERSTANDING

1. Pauline bought a box of 280 black and red beads.
 $\frac{2}{7}$ of the beads were black.
How many red beads were there in the box?

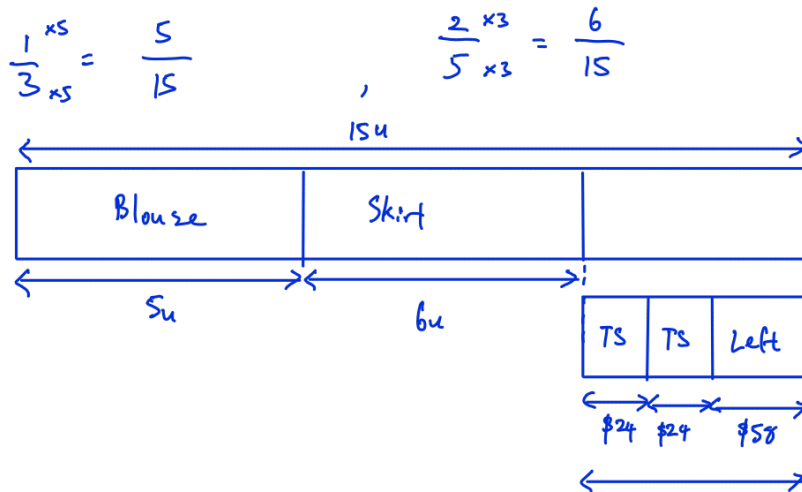


$$\frac{5}{7} \times 280 = 200$$

Ans: 200

2. Sue went shopping with a sum of money. She spent $\frac{1}{3}$ of her money on a blouse and $\frac{2}{5}$ of her money on a skirt. After that, she bought 2 T-Shirts that cost \$24 each and had \$58 left. How much did the blouse cost?

(Maha Bodhi SA2 Paper 2 Q7)



$$15u - 5u - 6u = 24 + 24 + 58$$

$$4u = 106$$

$$1u = 106 \div 4$$

$$= 26.50$$

$$5u = 5 \times 26.50$$

$$= 132.50$$

Ans : \$132.50

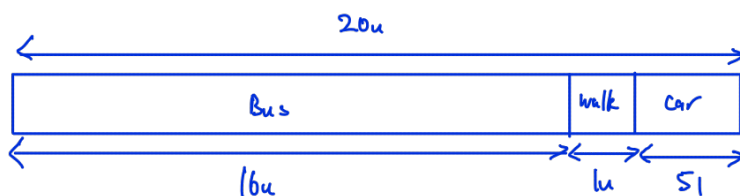
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$$\frac{4}{5} = \frac{16}{20}$$

3. 80% of the pupils in ABC school travel by bus.
51 of the pupils travel by car.
The remaining 5% of the pupils walk to school.
How many pupils walk to school?

$$80\% = \frac{80}{100} = \frac{4 \times 4}{5 \times 4} = \frac{16}{20}, \quad 5\% = \frac{5}{100} = \frac{1}{20}$$



$$20u - 16u - u = 51$$

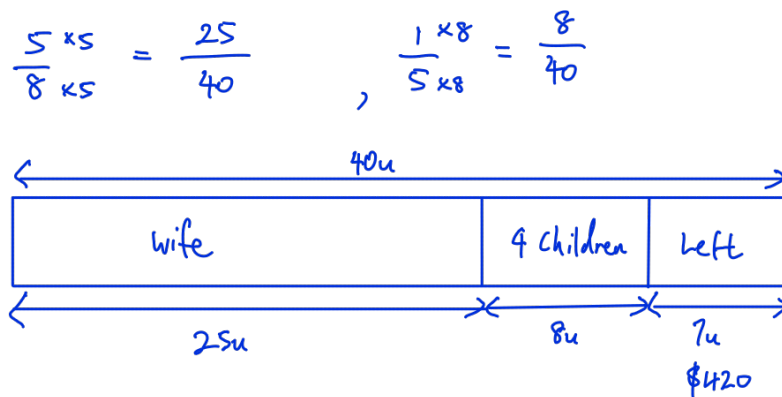
$$3u = 51$$

$$u = 51 \div 3$$

$$= 17$$

Ans: 17

4. Mr Lim gave $\frac{5}{8}$ of his salary to his wife.
 He gave $\frac{1}{5}$ of his salary to his four children and spent the rest of the money.
 He spent \$420. Given that each of his four children received the same amount,
 how much did each child receive?



$$40u - 8u - 25u = 420$$

$$7u = 420$$

$$1u = 420 \div 7$$

$$= 60$$

$$8u \div 4 = 2u$$

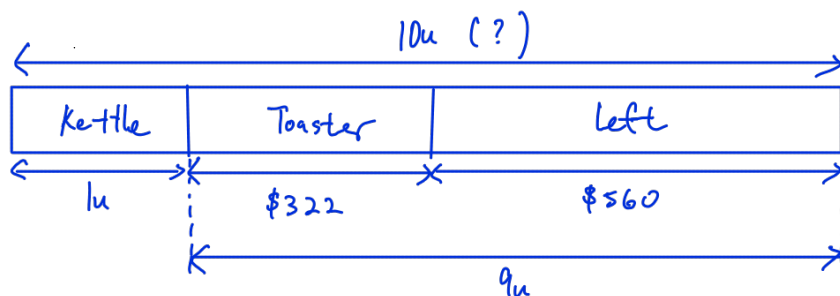
$$= 2 \times 60$$

$$= 120$$

Ans : \$120

5. Gina spent 10% of her salary on a kettle.
She spent another \$322 on a toaster and had \$560 left.
How much money did Gina have at first?

$$10\% = \frac{10}{100} = \frac{1}{10}$$



$$10u - 1u = 322 + 560$$

$$9u = 882$$

$$1u = 882 \div 9$$

$$= 98$$

$$10u = 10 \times 98$$

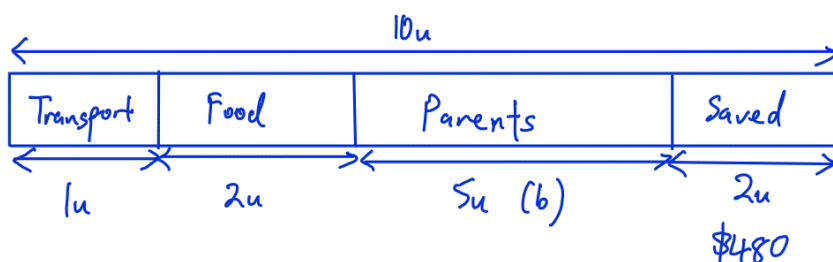
$$= 980$$

Ans : \$980

6. Jamie spent $\frac{1}{10}$ of her salary on transport and $\frac{1}{5}$ of it on food. She also gave $\frac{1}{2}$ of her salary to her parents. She saved the remaining \$480 of her salary.
- What fraction of her salary did she save?
 - How much money did she give her parents?
 - How much did she spend on food and transport?

(Nan Hua P5 CA1 2016 Q15)

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



$$\begin{aligned} \text{a) } \frac{10}{10} - \frac{2}{10} - \frac{5}{10} - \frac{1}{10} &= \frac{2}{10} \\ &= \frac{1}{5} \end{aligned}$$

$$\begin{aligned} \text{b) } 2u &= 480 \\ 1u &= 480 \div 2 \\ &= 240 \\ 5u &= 5 \times 240 \\ &= 1200 \end{aligned}$$

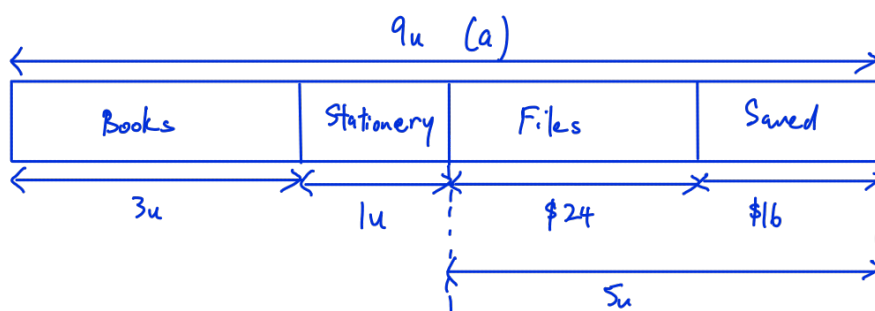
$$\begin{aligned} \text{c) } 3u &= 3 \times 240 \\ &= 720 \end{aligned}$$

$$\begin{aligned} \text{Ans: a) } &\underline{\frac{1}{5}} \\ \text{b) } &\underline{1200} \\ \text{c) } &\underline{720} \end{aligned}$$

7. Tze Kai had some money. He spent \$24 on files, $\frac{1}{3}$ of the money on books and $\frac{1}{9}$ of the money on stationeries. He saved the remaining \$16.
- a) How much money did he have at first?
- b) What fraction of his money did he save?

(Nanyang P5 CA1 Q16)

$$\frac{1 \times 3}{3 \times 3} = \frac{3}{9}, \quad \frac{1}{9}$$



$$a) \quad 9u - 3u - 1u = 24 + 16$$

$$5u = 40$$

$$1u = 40 \div 5$$

$$= 8$$

$$9u = 9 \times 8$$

$$= 72$$

$$b) \quad \frac{16}{72} = \frac{2}{9}$$

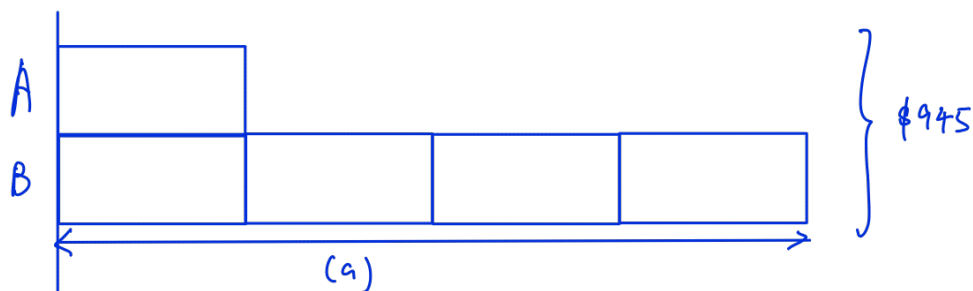
Ans : a) \$ 72

b) $\frac{2}{9}$

CHALLENGE YOURSELF

Amy and Brian decided to buy a bag which costs \$945 for their mother.
They shared the cost of the bag in the ratio of 1 : 4.

- a) How much did Brian pay for the bag?
- b) Cathy wanted to share the cost of the bag too.
The three of them decided to share the cost of the bag equally.
How much less did Brian need to pay?



$$a) 945 \div 5 \times 4 = 756$$

$$b) 945 \div 3 = 315$$

$$756 - 315 = 441$$

$$\text{Ans : a) } \underline{\$756}$$

$$b) \underline{\$441}$$