



**Primary 5**  
**Model / Branching**  
**Lesson 3:**  
**Remainder Scenario (III)**

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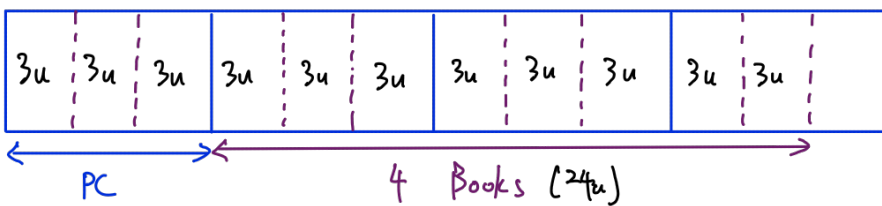
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# LESSON 3: Equivalent Quantity Replacement

## GUIDED EXAMPLE 1

Andy spent  $\frac{1}{4}$  of his money on some pencil cases and  $\frac{8}{9}$  of his remaining money on 4 books. [Given that each book costs 6 times as much as a pencil case,] find the number of pencil cases he bought.

model



	No. items	Value	Total value
PC	9	1u	9u
Books	4	6u	24u

$$4 \times 6u = 24u$$

$$24u \div 8 = 3u$$

$$3 \times 3u = 9u$$

$$9u \div 1u = 9$$

Ans : 9

**GUIDED EXAMPLE 2**

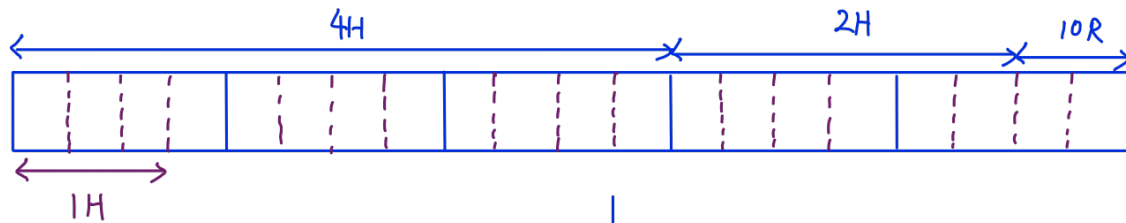
Lawrence had some money.

He spent  $\frac{3}{5}$  of it on 4 similar highlighters.

With the rest of the money, he bought another 2 such highlighters and 10 rulers.

What fraction of his money was spent on buying 10 rulers?

Give your answer in simplest form.



$$12u \div 4 = 3u$$

$$2 \times 3u = 6u$$

$$20u - 18u = 2u$$

$$\begin{aligned} \text{Required fraction} &= \frac{2}{20} \div 2 \\ &= \frac{1}{10} \end{aligned}$$

Alt sol :

$$\frac{1}{4} \times \frac{3}{5} = \frac{3}{20}$$

$$6 \times \frac{3}{20} = \frac{18}{20}$$

$$\begin{aligned} \text{Required fraction} &= \frac{20}{20} - \frac{18}{20} \\ &= \frac{2}{20} \div 2 \\ &= \frac{1}{10} \end{aligned}$$

Ans :  $\frac{1}{10}$

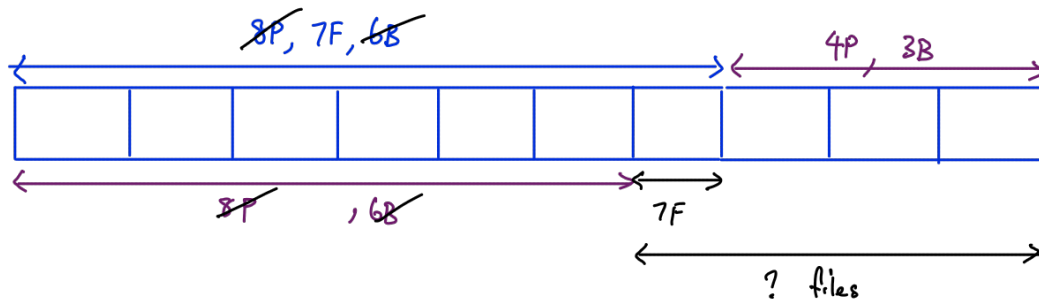
**GUIDED EXAMPLE 3**

Queenie spent  $\frac{7}{10}$  of her money on 8 pens, 7 files and 6 bags.

She found that she could buy 4 similar pens and 3 similar bags with the rest of her money.

How many files could she buy with  $\frac{2}{5}$  of her money?

$$\frac{2}{5} \times 2 = \frac{4}{10}$$

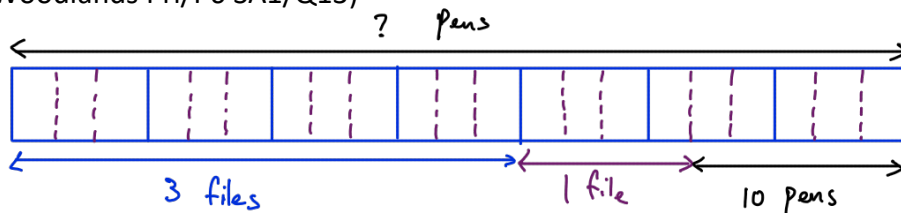


$$4 \times 7 \text{ files} = 28 \text{ files (Ans)}$$

**GUIDED EXAMPLE 4**

Rachel bought 3 identical files with  $\frac{4}{7}$  of the money she had.  
 She could buy exactly 1 file and 10 identical pens with the remaining amount of money.  
 How many pens could she have bought with all the money she had at first?

(Woodlands Pri/P6 SA1/Q13)



$$12u \div 3 = 4u$$

$$4 \times 4u = 16u$$

$$21u - 16u = 5u$$

$$5u = 10 \text{ Pens}$$

$$1u = 10 \text{ Pens} \div 5$$

$$= 2 \text{ Pens}$$

$$21u = 21 \times 2 \text{ Pens}$$

$$= 42 \text{ Pens}$$

Ans : 42 Pens

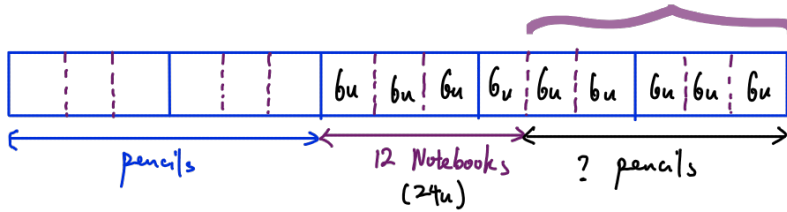
**GUIDED EXAMPLE 5**

Victor used  $\frac{2}{5}$  of his money to buy some pencils

and  $\frac{4}{9}$  of the remainder to buy 12 notebooks.

(Each notebook cost twice as much as each pencil.) value

How many pencils did he buy with the rest of his money?



	No. items	Value	Total value
Pencils	<del>    </del>	1u	30u
Notebooks	12	2u	24u

$$12 \times 2u = 24u$$

$$24u \div 4 = 6u$$

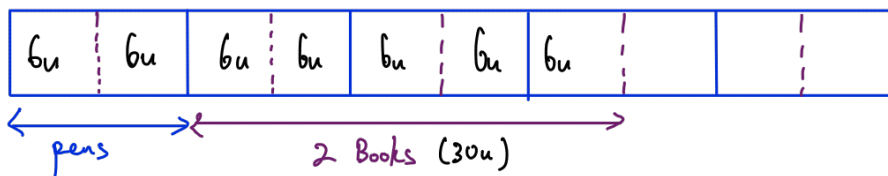
$$5 \times 6u = 30u$$

$$30u \div 1u = 30$$

Ans : 30

**BUILD YOUR UNDERSTANDING**

1. Cathy spent  $\frac{1}{5}$  of her money on pens and  $\frac{5}{8}$  of her remaining money on 2 books. Each book costs 15 times as much as a pen. How many pens did she buy?



	No. items	value	Total Value
Book	2	15u	30u
Pen		1u	12u

$$2 \times 15u = 30u$$

$$30u \div 5 = 6u$$

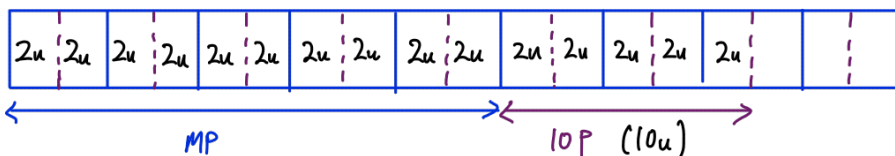
$$2 \times 6u = 12u$$

$$12u \div 1u = 12$$

Ans : 12



2. A mechanical pencil costs 5 times as much as a ball point pen.  
 Jason spent  $\frac{5}{9}$  of his money on mechanical pencils  
 and  $\frac{5}{8}$  of the remainder on 10 ball point pens.  
 How many mechanical pencils did Jason buy?



	No. items	Value	Total value
MP		5u	20u
BPP	10	1u	10u

$$10 \times 1u = 10u$$

$$10u \div 5 = 2u$$

$$10 \times 2u = 20u$$

$$20u \div 5u = 4$$

Ans : 4

# Primary 5

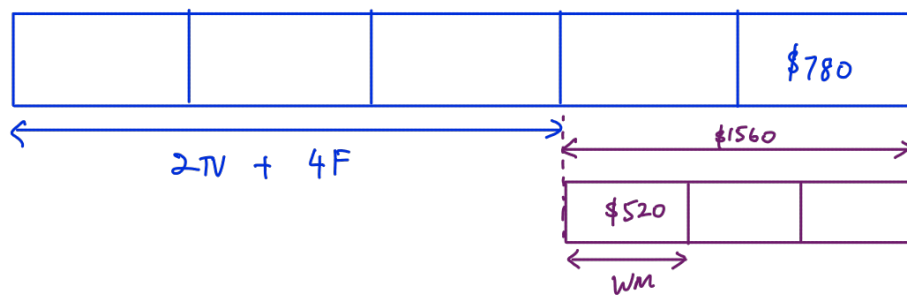
# Model / Branching

Remainder Scenarios (III)

3. Mrs Goh spent  $\frac{3}{5}$  of her money on 2 identical televisions and 4 fans. She then spent  $\frac{1}{3}$  of her remaining money on a washing machine. The washing machine costs \$520.

- a) What is the total cost of the 2 television and 4 fans?
- b) If each television cost \$933 more than each fan, what is the cost of each fan?

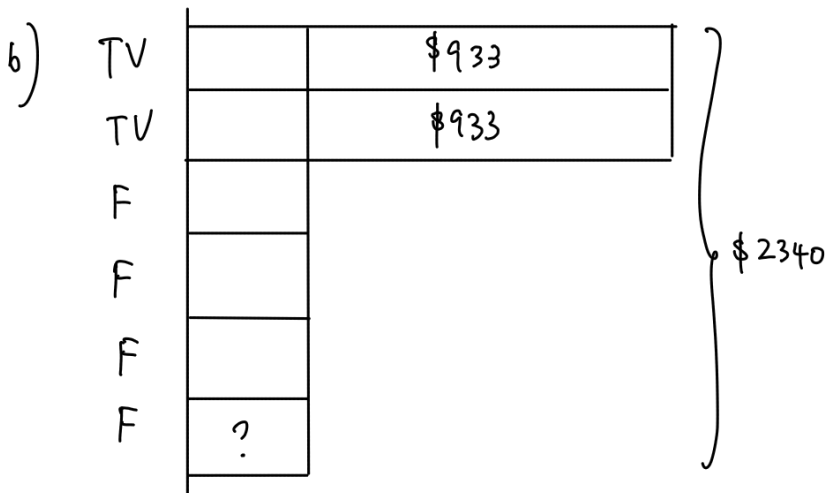
(Nan Hua P5 SA1 Q15)



$$3 \times 520 = 1560$$

$$1560 \div 2 = 780$$

$$a) 3 \times 780 = 2340$$



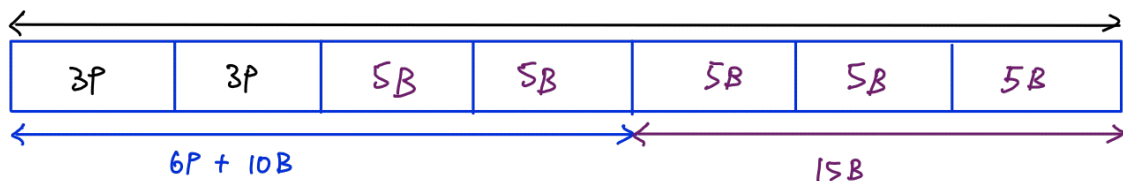
$$b) 2340 - 933 - 933 = 474$$

$$474 \div 6 = 79$$

Ans : a) \$2340

b) \$79

4. Susan spent  $\frac{4}{7}$  of her money on 6 pens and 10 exercise books.  
 She could buy another 15 exercise books with the rest of her money.
- a) If Susan spends all her money on pens only, how many pens can she buy?
- b) If each pen cost \$1.50, how much money does Susan have?



$$15B \div 3 = 5B$$

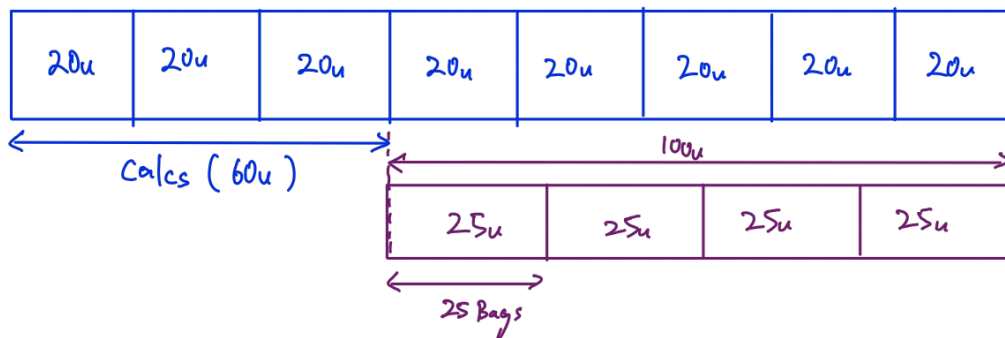
a)  $7 \times 3 \text{ pens} = 21 \text{ pens}$

b)  $21 \times 1.50 = 31.50$

Ans : a) 21 pens

b) \$31.50

5. Michael spent  $37.5\%$  of his money on some calculators, and  $25\%$  of the remaining money on 25 bags. Each calculator costs twice as much as a bag. How many calculators did he buy?



$$25 \times 1u = 25u$$

$$4 \times 25u = 100u$$

$$100u \div 5 = 20u$$

$$3 \times 20u = 60u$$

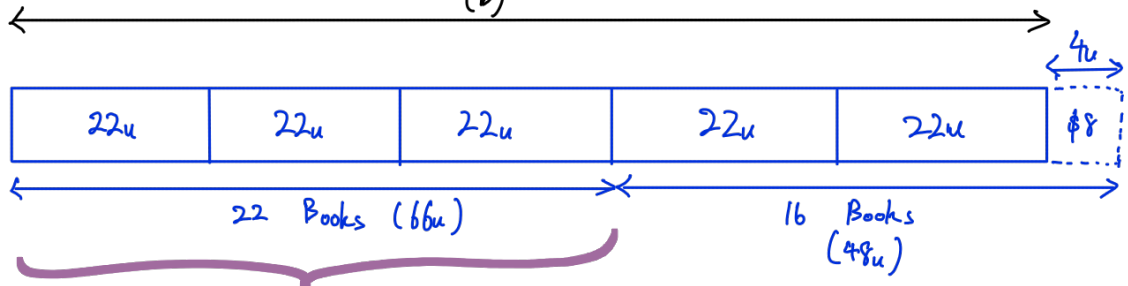
$$60u \div 2u = 30$$

Ans : 30

6. Ali spent  $\frac{3}{5}$  of his money on 22 books.  
 If he topped up another \$8 with the remaining money,  
 he would be able to buy 16 such books

$$\begin{aligned} 3, \dots & 66u \\ 22, \dots & 66u \end{aligned}$$

- a) What is the price of 1 book?  
 b) How much money did Ali had at first?  
 (b)



want this to be divisible by  
 22 and 3, 66u

22 books cost 66u

1 book costs  $66u \div 22 = 3u$

16 books cost  $16 \times 3u = 48u$

$$48u - 22u - 22u = 8$$

$$4u = 8$$

a)  $3u = 3 \times \frac{8}{4}$

$$= 6$$

b)  $110u = 110 \times \frac{8}{4}$

$$= 220$$

Ans : a) \$6

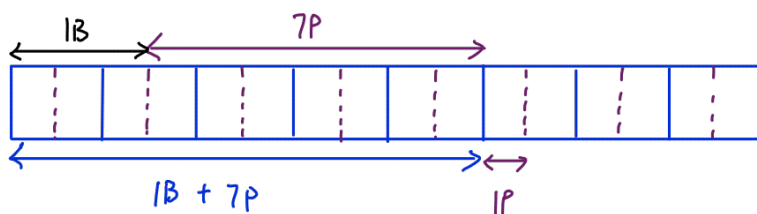
b) \$220

**CHALLENGE YOURSELF**

Jasper spent  $\frac{5}{8}$  of his money on a bag and 7 pens.

The cost of each pen is  $\frac{1}{6}$  of his remaining money.

If the total cost of the 7 pens is \$8 more than the cost of the bag, how much did Jasper have at first?



$$7u - 3u = 8$$

$$4u = 8$$

$$1u = 8 \div 4$$

$$= 2$$

$$1bu = 16 \times 2$$

$$= 32$$

Ans : \$32