01 **In a cooking competition, 5 girls were given a certain amount of flour, as shown below, for baking cakes.**

Sushma : 350 g

Vani : 20% more than the amount of flour given to Sushma.

Monal : 2/3 of the amount of flour given to Vani.

Druvika : Double the amount of flour given to Monal.

Naini : 5/8 of the flour given to Druvika.

What was the average amount of flour given to each girl ?

Sushma = 350 g

$$\text{Vani} = 350 \times \frac{120}{100} = 420 \text{ g}$$

$$\text{Monal} = 420 \times \frac{2}{3} = 280 \text{ g}$$

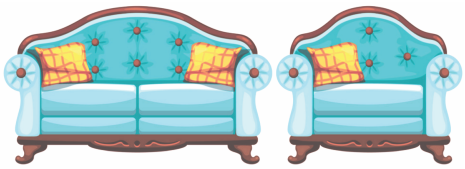
Druvika = 280 × 2 = 560 g

$$\text{Naini} = 560 \times \frac{5}{8} = 350 \text{ g}$$

350 + 420 + 280 + 560 + 350 = 1960

1960 ÷ 5 = 392 g

02 **The usual price of a sofa set was ₹ 1100. After selling it at a discount of 20%, the shopkeeper found that he earned 10% on the cost price of the sofa set.**



a) Find the cost price of the sofa set.

b) Find the amount of money that the shopkeeper earned from the sale of the sofa set.

c) If the buyer of the sofa set had to pay 7% GST on the discounted price, find the actual amount paid by the buyer for the sofa set.

a) Usual price : ₹ 1100 (100%)

Discount : 20%

Selling price = 100% – 20% = 80% of ₹ 1100

$\frac{80}{100} \times ₹\ 1100 = ₹\ 880$

The selling price of the sofa set after discount was ₹ 880

The shopkeeper earned 10% on his cost price

Now, we take the cost price as 100%

(NOTE: This 100% is different from the previous one)

100% + 10% = 110%

110% = 880 (selling price)

$1\% = \frac{880}{110} = ₹\ 8$

100% = 100 × ₹ 8 = ₹ 800

The cost price of the sofa set was ₹ 800

b) He earned 10% on the cost price

$$\frac{10}{100} \times ₹\ 800 = ₹\ 80$$

He earned ₹ 80 from the sale of the sofa set

c) Discount price = ₹ 880

$$\text{GST} = \frac{7}{100} \times ₹\ 880 = \frac{616}{10} = ₹\ 61.60$$

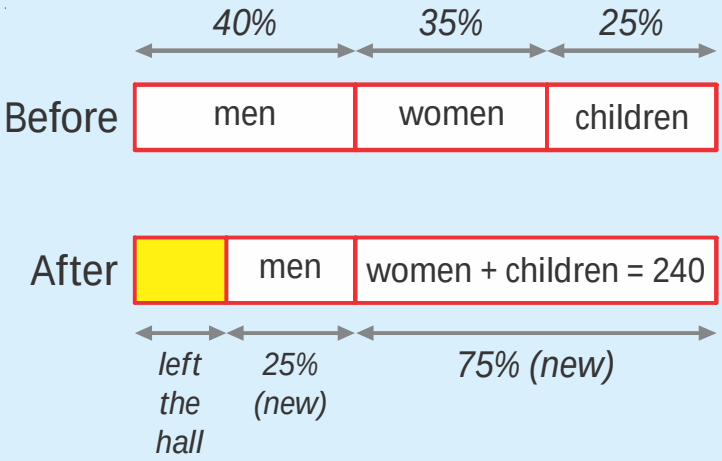
Total amount paid by the buyer

= ₹ 880 + ₹ 61.60 = ₹ 941.60

03 **40% of the people in a hall were men, 140 were women and the remaining 25% were children. When some men left the hall, the percentage of men in the hall dropped to 25%. How many men were there in the hall in the end ?**

At first

100% – (40% + 25%) = 35% (women)



35% = 140 (number of women)

$$1\% = \frac{140}{35} = 4$$

40 % = 40 × 4 = 160 (number of men)

25% = 25 × 4 = 100 (number of children)

Total number of women and children (before and later)

= 140 + 100 = 240 (no change)

The percentage of men became 25% of the new total

Therefore, women and children formed 75% of the new total

Hence now : 75% = 240

$$1\% = \frac{240}{75} = \frac{16}{5}$$

$$25\% = \frac{16}{5} \times 25 = 80$$

There were 80 men in the hall in the end

NOTE:

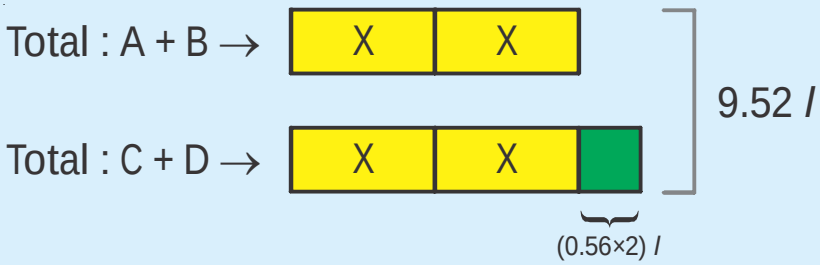
i) In this problem, only one quantity changes. The 40% and 25% for men refer to different 'wholes' (or totals).

ii) When the statement says that the number of men became 25%, ask : '25% of WHAT?' Your answer will be '25% of the people now left in the hall.' This will help you to understand the question correctly)

04 **Sushanth poured some juice into 4 jars A, B, C and D. The average volume of juice in jar A and jar B was 0.56 *l* less than average volume of juice in the other 2 jars. The average volume of juice in all the 4 jars was 2.38 *l*. Jar A had 80% as much juice as jar B. Find the volume of juice in jar A. Give your answer in *l* and m*l*, correct to the nearest m*l*.**

Total volume of juice in the 4 jars = 2.38 × 4 = 9.52 *l*

Let the average volume of juice in jar A and jar B be represented by [X] (1 unit)



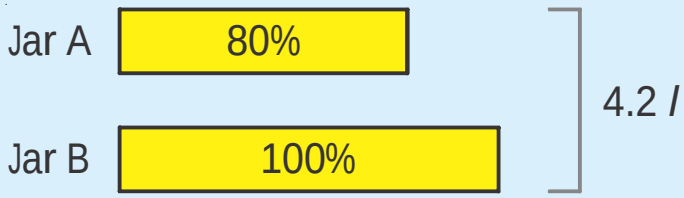
0.56 × 2 = 1.12 *l*

9.52 – 1.12 = 8.4 *l*

4 units = 8.4 *l*

1 unit = 8.4 ÷ 4 = 2.1 *l*

Total A + B = 2 units = 2.1 × 2 = 4.2 *l*



180% = 4.2 *l*

$$1\% = \frac{4.2}{180} = \frac{7}{300}$$

$$80\% = \frac{7}{300} \times 80 \approx 1.867 \text{ } l$$

Jar A had 1 *l* 867 m*l* of juice

05 **P, Q and R are 3 squares. The sum of area of the 3 squares is 154 cm². The side of each square is a whole number less than 10 cm. Each side of square R is 3 times the side of square P. Find**

P Q R

a) the average area of square P and R.

b) the average perimeter of the 3 squares.

Three possible values of sides of P and R

- 1 cm and 3 cm
- 2 cm and 6 cm
- 3 cm and 9 cm

If P = 1 cm and R = 3 cm:

Area of P and R = 1 × 1 + 3 × 3 = 10

Area of Q = 154 – 10 = 144

144 = 12 × 12

Each side of Q = 12 cm (more than 10 cm)

This option is not possible

If P = 2 cm and R = 6 cm

Area of P and R = 2 × 2 + 6 × 6 = 40

154 – 40 = 114

10 × 10 = 100 and 11 × 11 = 121

114 is between 100 and 121

Hence, each side of B is more than 10 cm long.

Thus, this option is also ruled out.

If P = 3 cm and R = 9 cm

Area of P and R = 3 × 3 + 9 × 9 = 90

Area of Q = 154 – 90 = 64

8 × 8 = 64

∴ Square Q has a side 8 cm (less than 10 cm).

Thus, the sides of squares P, Q and R are 3 cm, 8 cm and 9 cm respectively.

a) Ara of P + Area of R

= 3 × 3 + 9 × 9 = 90 cm^2

Average area of P and R = 90 ÷ 2 = 45 cm^2

b) Total perimeter of P, Q and R

= 4 × 3 + 4 × 8 + 4 × 9

= 12 + 32 + 36 = 80

Average perimeter of P, Q and R = $80 \div 3 = 26\frac{2}{3}$ cm

06 **4 identical dresses and 3 identical shirts cost ₹ 148, while 8 such dresses and 2 such shirts cost ₹ 48 more. Find the average cost of 3 such dresses and 2 such shirts.**

4 dresses + 3 shirts = ₹ 148 ..... (1)

8 dresses + 2 shirts = 148 + 48 = ₹ 196 ..... (2)

From (1), we get

8 dresses + 6 shirts = ₹ 148 × 2 = ₹ 296 ..... (3)

Difference in cost between (3) and (2) is the cost of 4 shirts. (6 – 2 = 4)

4 shirts cost ₹ 296 – ₹ 196 = ₹ 100

Cost of 1 shirt = ₹ 100 ÷ 4 = ₹ 25

Cost of 2 shirts = ₹ 25 × 2 = ₹ 50

But 8 dresses + 2 shirts cost ₹ 196 (from (2))

∴ Cost of 8 dresses = ₹ 196 – ₹ 50 = ₹ 146

Cost of 1 dress = ₹ $\frac{146}{8}$ = ₹ 18.25

Cost of 3 dresses = ₹ 18.25 × 3 = ₹ 54.75

Total cost of 3 dresses and 2 shirts

= ₹ 54.75 + ₹ 50 = ₹ 104.75

Average cost of 3 dresses and 2 shirts

= ₹ 104.75 ÷ 5 = ₹ 20.95