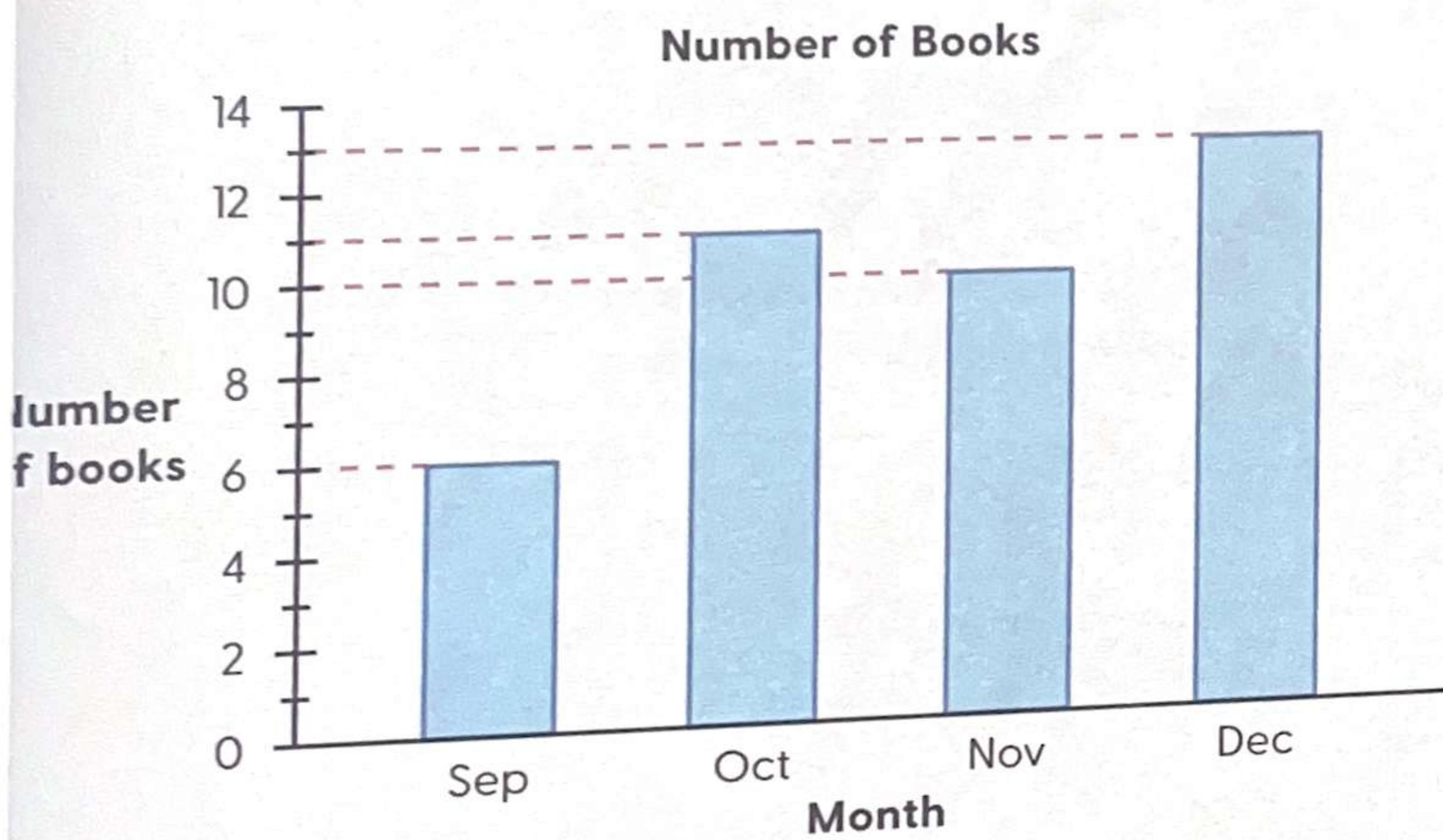
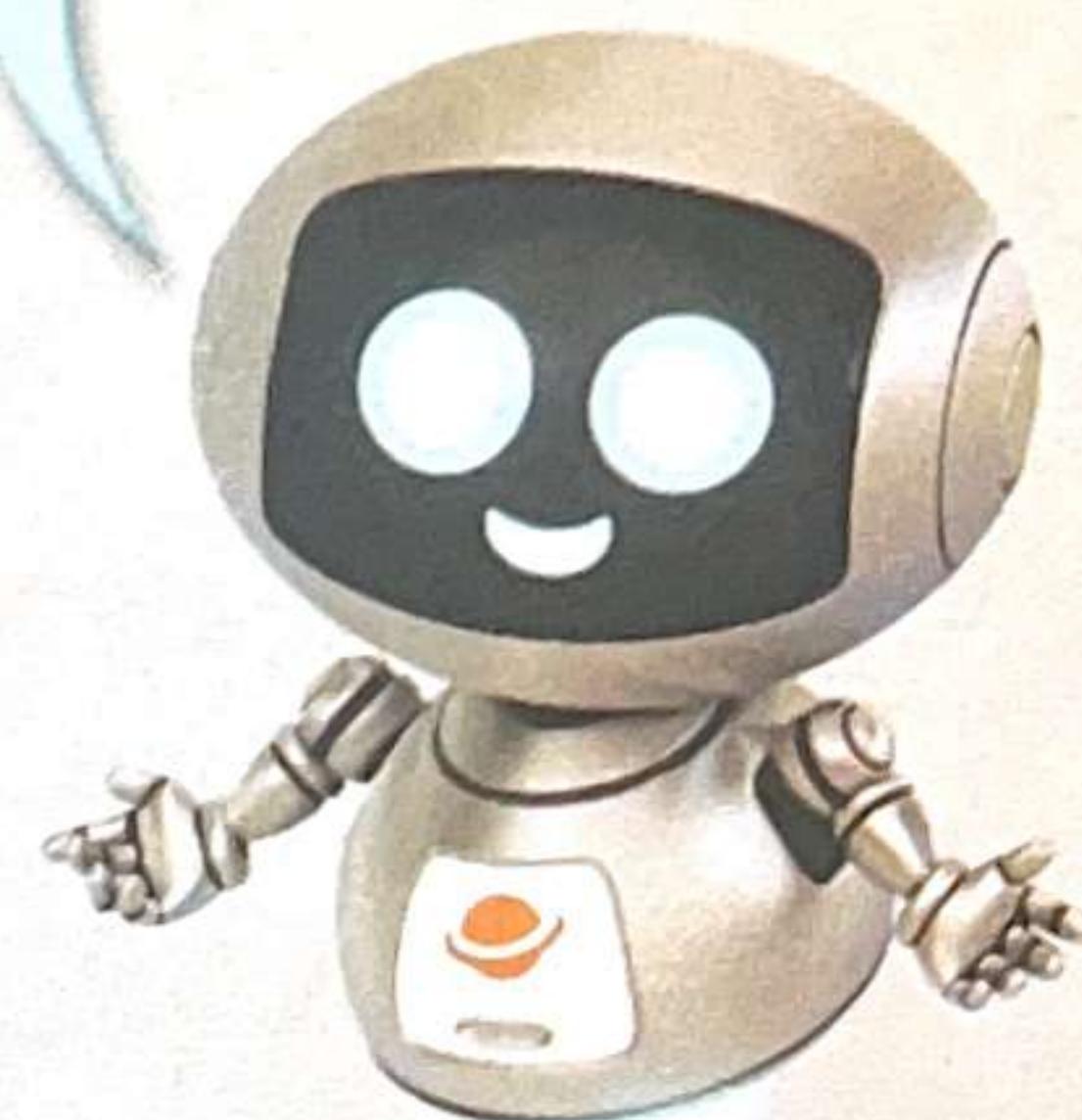


Average

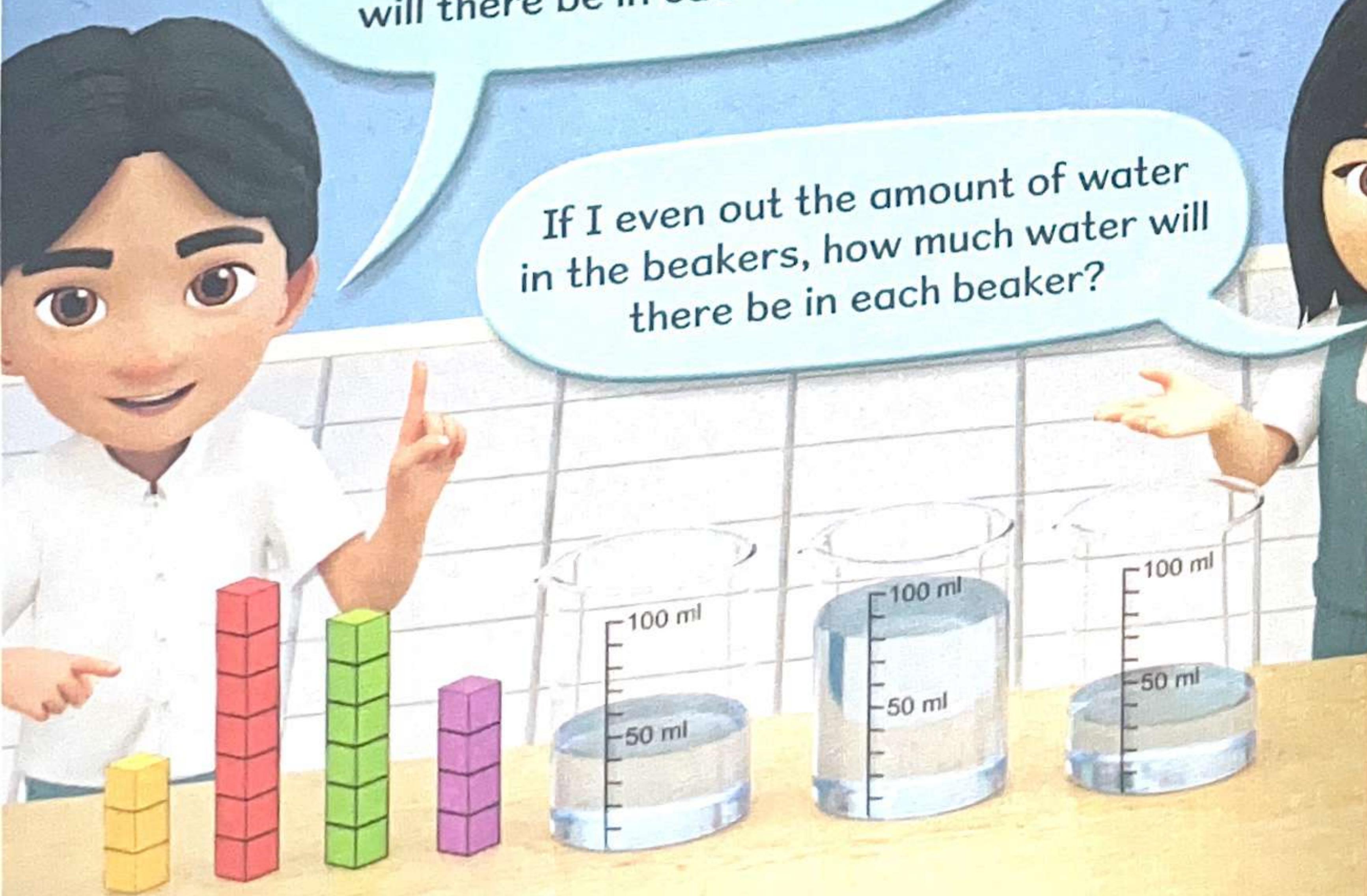


Suppose Samad read the same number of books each month, how many books would he have read each month?



If I move some cubes so that the four towers have the same height, how many cubes will there be in each tower?

If I even out the amount of water in the beakers, how much water will there be in each beaker?



SINGAPORE STUDENT LEARNING SPACE

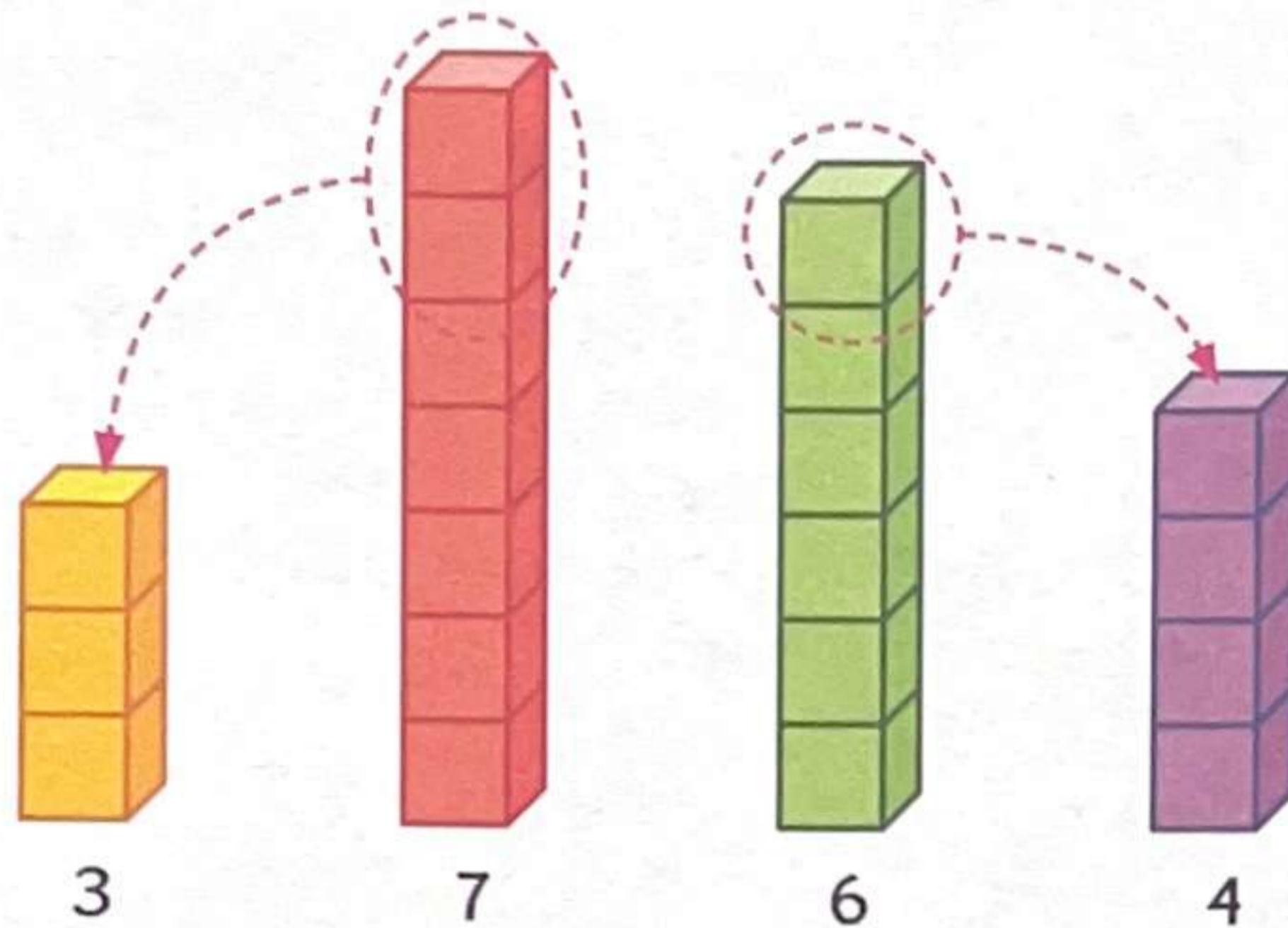
Do you know how to find average, total value and number of data?
Learn more at go.gov.sg/pm609



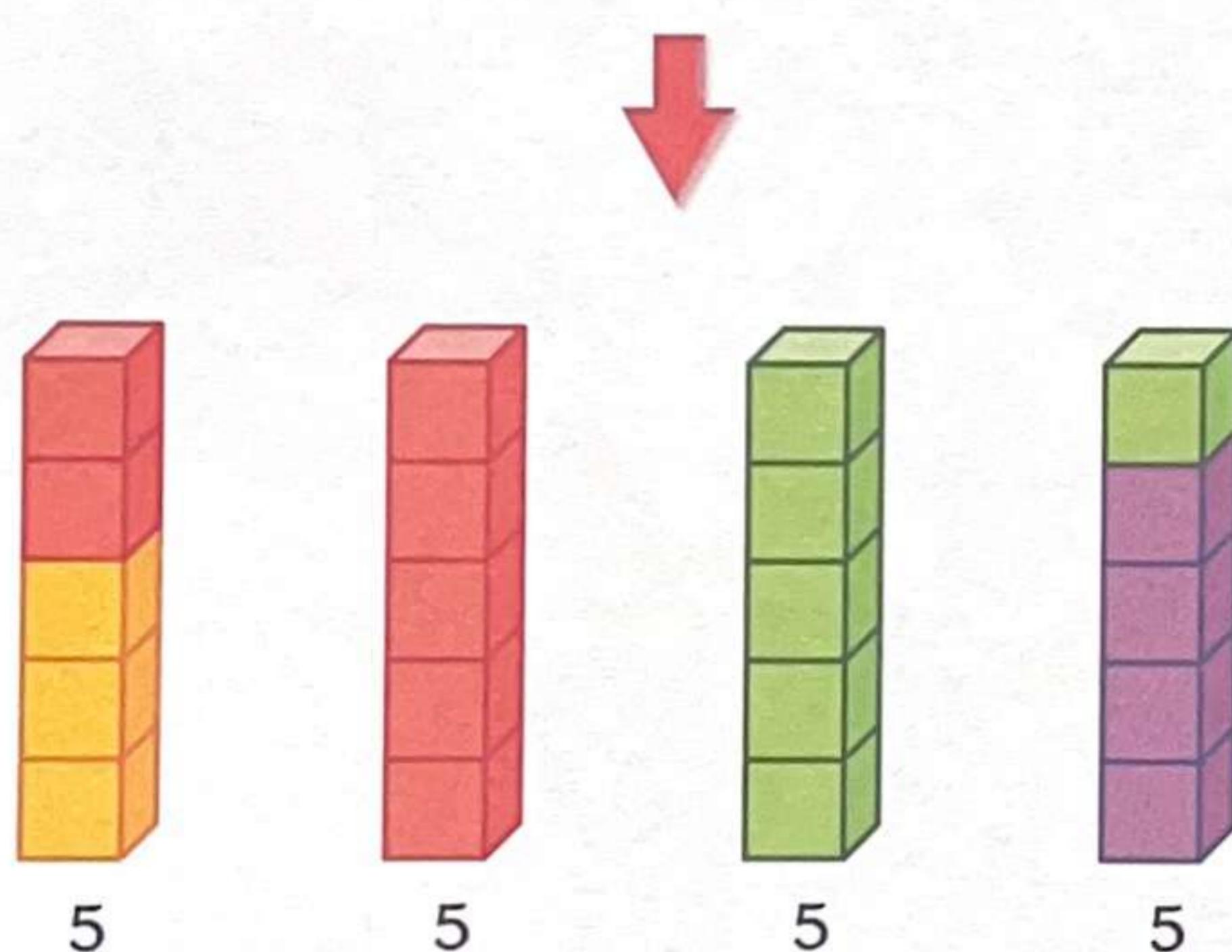
Finding Average

Four towers are built using different numbers of cubes.

If the cubes are rearranged so that each tower has the same number of cubes, how many cubes will there be in each tower?



Let us **even out** the number of cubes.

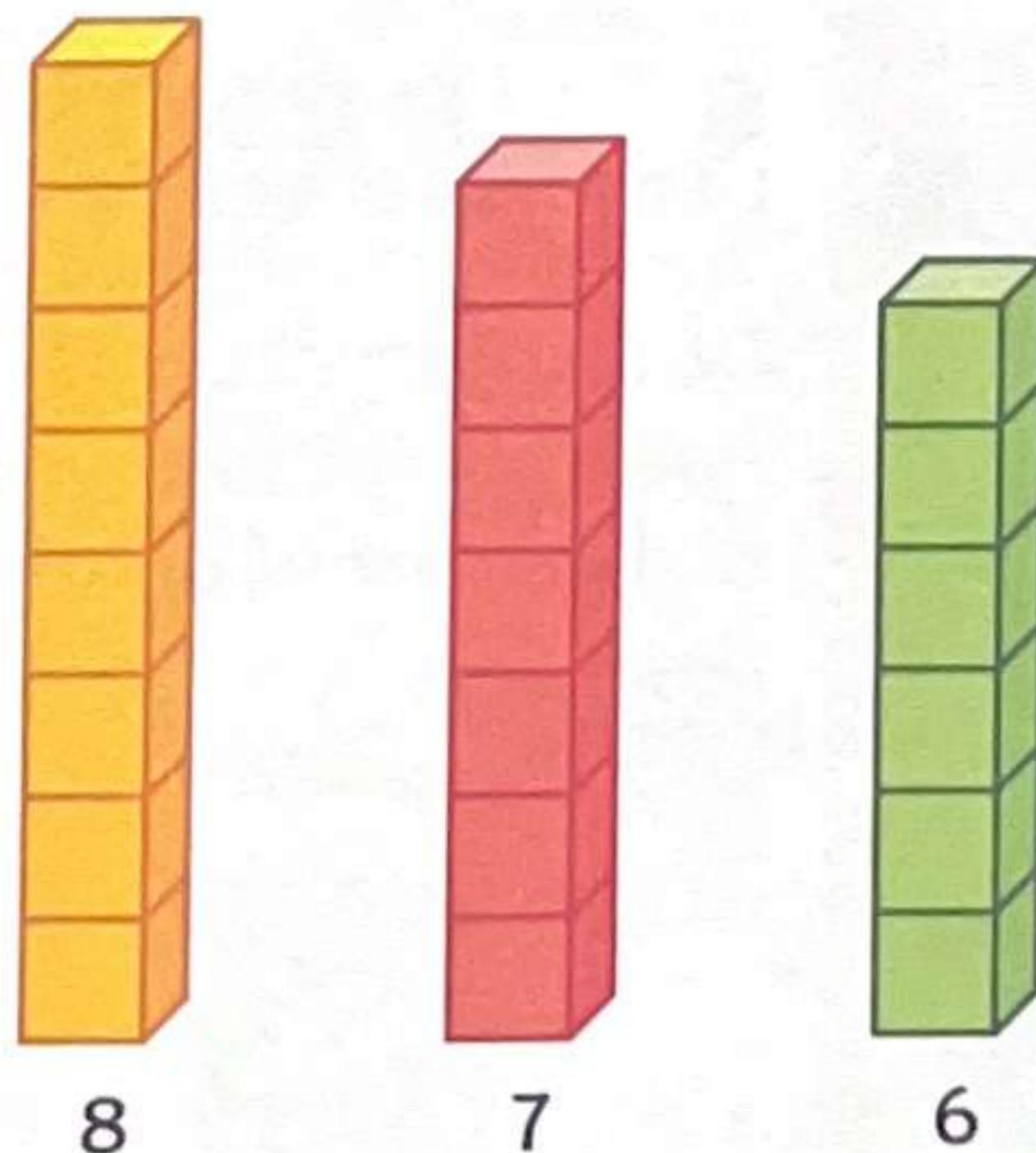


If we even out the number of cubes, we are finding the **average** number of cubes in each tower.

If we **even out** the number of cubes, each tower will have 5 cubes.

The **average** number of cubes in each tower is 5.

Here are three towers with 8 cubes, 7 cubes and 6 cubes as shown.



How can I even out the number of cubes?
What is the average of the 3 numbers?



Connie took part in 4 quizzes. Her scores are shown below.

	Score
Quiz 1	24
Quiz 2	30
Quiz 3	12
Quiz 4	20

- (a) What was Connie's total score?
(b) What was her average score?

(a) Total score = $24 + 30 + 12 + 20$
= 86

Connie's total score was 86.

(b) Average score = $86 \div 4$
= 21.5

Connie's average score was 21.5.

The average score
can be a decimal.



The masses of 4 children are shown below.
What is the average mass of the 4 children?



38 kg



40 kg



37 kg



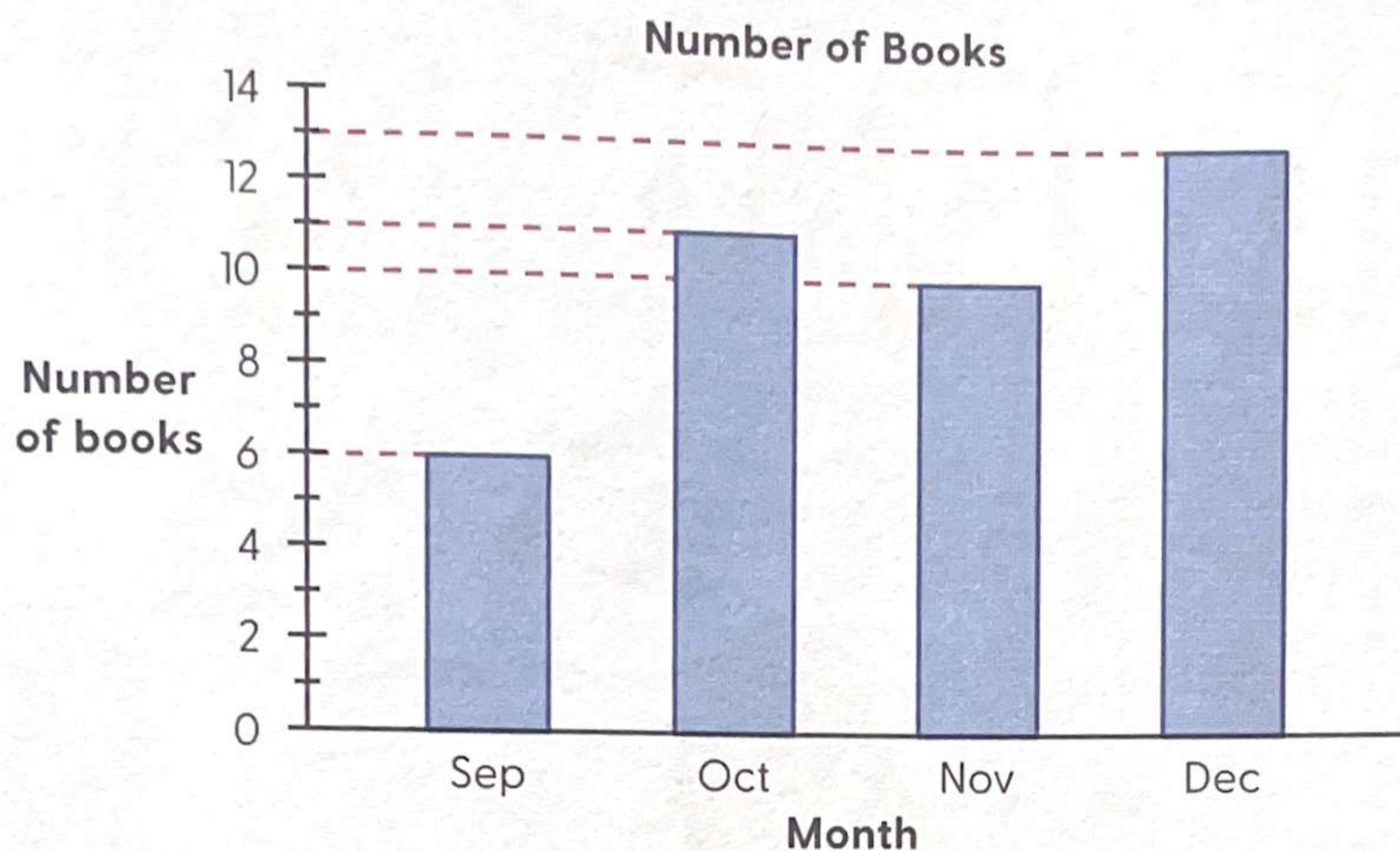
42 kg

Total mass of 4 children = $38 \text{ kg} + 40 \text{ kg} + 37 \text{ kg} + 42 \text{ kg}$
= 157 kg

Average mass of 4 children = $157 \text{ kg} \div 4$
= 39.25 kg

The average mass of the 4 children is 39.25 kg.

The graph shows the number of books Samad read from September to December. What was the average number of books Samad read in a month from September to December?



$$\begin{aligned}\text{Total number of books read} &= 6 + 11 + 10 + 13 \\ &= 40\end{aligned}$$

$$\begin{aligned}\text{Average number of books read in a month} &= 40 \div 4 \\ &= 10\end{aligned}$$

Samad read an average of **10** books a month from September to December.

The total number of watermelons in 3 crates is 69. What is the average number of watermelons in each crate?



To find the average number of watermelons, we divide the total number of watermelons by the number of crates.



$$\begin{aligned}\text{Average} &= 69 \div 3 \\ &= 23\end{aligned}$$

The average number of watermelons in each crate is **23**.



(a) Find the average of each set of data.

(i) 12, 18, 45

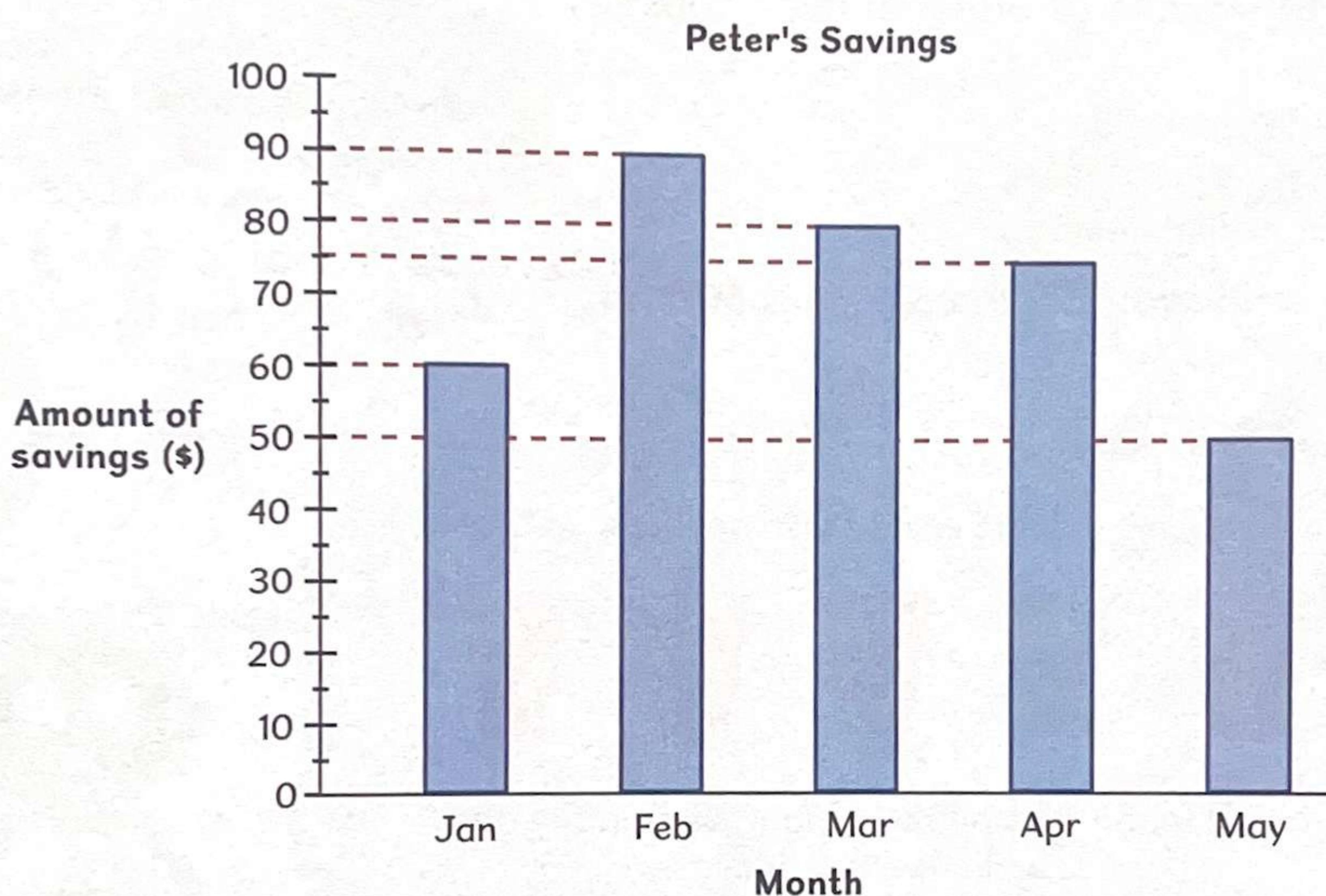
(ii) 13.2 kg, 7.1 kg, 4.36 kg, 10.02 kg

(b) The total length of 6 ribbons is 13.8 m.

What is the average length of the 6 ribbons?

(c) The bar graph shows the amount of money Peter saves each month from January to May.

What is his average amount of savings for the 5 months?



(d) The table shows the scores of 3 students in three quizzes.

Name	Quiz 1	Quiz 2	Quiz 3
Annie	72	76	74
Bala	74	81	70
Charlie	90	63	78

(i) Find the average score for each of the 3 students for the 3 quizzes.

(ii) Who has the highest average score for the 3 quizzes?



Finding Total Value

The average number of stickers in 3 packets is 18.

What is the total number of stickers in the 3 packets?

$$\begin{aligned}\text{Total number of stickers} &= 18 \times 3 \\ &= 54\end{aligned}$$

To find the total number of stickers, we multiply the average by the number of packets.



The total number of stickers in the 3 packets is **54**.

The average volume of water in 5 cups is 120 ml.

What is the total volume of water in the 5 cups?

$$\begin{aligned}\text{Total volume} &= 120 \text{ ml} \times 5 \\ &= 600 \text{ ml}\end{aligned}$$

Total volume of water
= Average volume × Number of cups

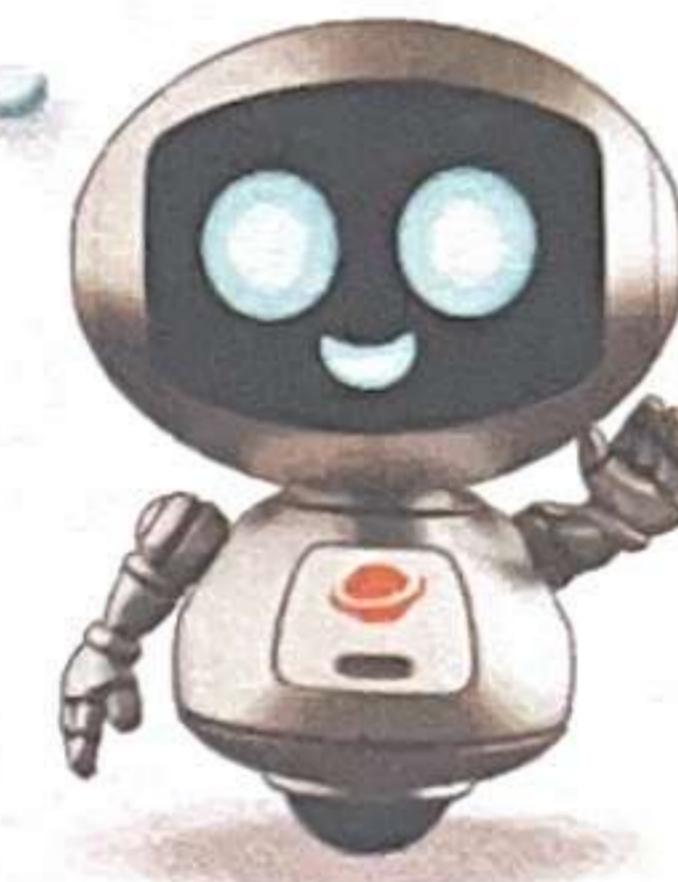


The total volume of water in the 5 cups is **600 ml**.

The average volume of water in each cup is 120 ml.



Does it mean that all the 5 cups contain the same volume of water?



Let's Try! 2

- The average of 6 numbers is 25.
What is the sum of the 6 numbers?
- Joan spent an average of 2 hours a day on a project from Monday to Thursday.
What was the total amount of time that Joan spent on her project?
- The average cost of 8 mobile phones is \$315.75.
What is the total cost of the 8 mobile phones?



Finding Number of Data

Raju spent \$45 on some T-shirts.
The average cost of the T-shirts is \$9.
How many T-shirts did he buy?

$$\text{Number of T-shirts bought} = \frac{\text{Total cost}}{\text{Average cost of T-shirts}}$$

$$\begin{aligned}\text{Number of T-shirts} &= 45 \div 9 \\ &= 5\end{aligned}$$

Raju bought **5** T-shirts.

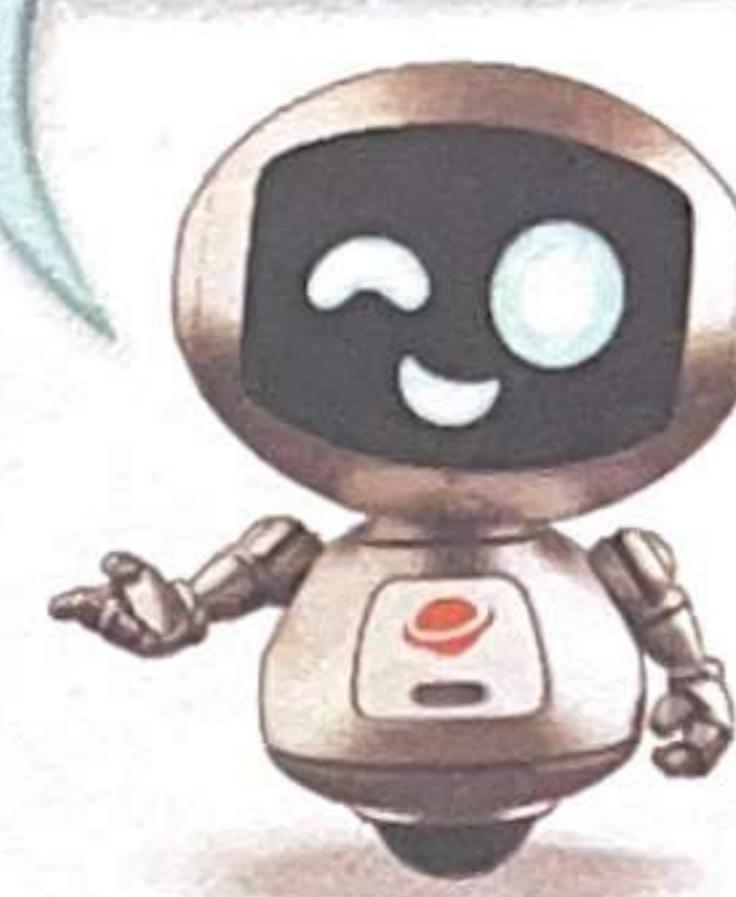


Sally has 24 tarts.
She packs the tarts into some boxes.
The average number of tarts in each box is 6.
How many boxes of tarts are there?

$$\begin{aligned}\text{Number of boxes} &= 24 \div 6 \\ &= 4\end{aligned}$$

There are **4** boxes of tarts.

Do all the boxes have the same number of tarts?



Let's Try
3

- (a) James bought some books for \$72.
The average cost of a book was \$8.
How many books did he buy?
- (b) A fruit seller has some papayas.
The total mass of the papayas is 70 kg.
The average mass of a papaya is 2 kg.
How many papayas does the fruit seller have?



Word Problems

The average of 4 numbers is 20.
The sum of 3 of the numbers is 69.
What is the fourth number?

$$\begin{aligned}\text{Sum of 4 numbers} &= 20 \times 4 \\ &= 80\end{aligned}$$

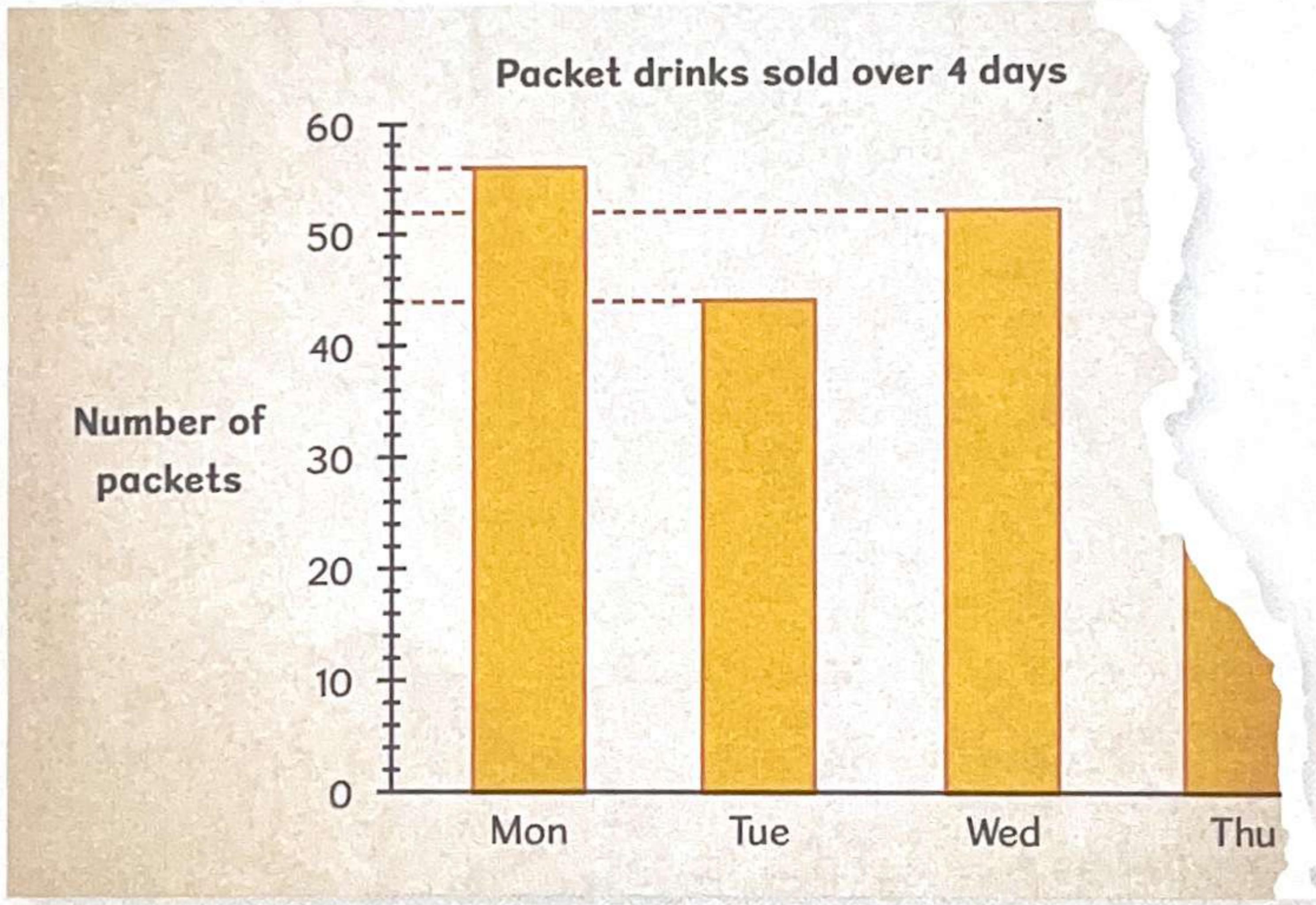
$$\begin{aligned}\text{Fourth number} &= 80 - 69 \\ &= 11\end{aligned}$$

The fourth number is **11**.

First, we find the sum of the 4 numbers.



The bar graph shows the number of packets of drinks sold by a drink seller over 4 days. The average number of packets of drinks sold each day was 48. The bar showing the number of packets of drinks sold on Thursday is partially torn off. How many packets of drinks were sold on Thursday?



$$\begin{aligned}\text{Total number of packets of drinks sold over 4 days} &= 48 \times 4 \\ &= 192\end{aligned}$$

$$\begin{aligned}\text{Number of packets of drinks sold on Thursday} &= 192 - 56 - 44 - 52 \\ &= 40\end{aligned}$$

40 packets of drinks were sold on Thursday.

There are 3 boxes, X, Y and Z, on a balance scale.
The average mass of boxes X and Y is 15 kg.
Find the average mass of the 3 boxes.



$$\begin{aligned}\text{Total mass of boxes X and Y} &= 15 \text{ kg} \times 2 \\ &= 30 \text{ kg}\end{aligned}$$

$$\begin{aligned}\text{Total mass of boxes X, Y and Z} &= 30 \text{ kg} \times 2 \\ &= 60 \text{ kg}\end{aligned}$$

$$\begin{aligned}\text{Average mass of the 3 boxes} &= 60 \text{ kg} \div 3 \\ &= 20 \text{ kg}\end{aligned}$$

The average mass of the 3 boxes is **20 kg**.

The mass of Box Z is the same as the total mass of Box X and Box Y.



The average height of 4 children is 1.45 m.
Another child whose height is 1.55 m joins the group.
What is the average height of the 5 children?

$$\begin{aligned}\text{Total height of 4 children} &= 1.45 \text{ m} \times 4 \\ &= 5.8 \text{ m}\end{aligned}$$

First, find the total height of the 4 children.



$$\begin{aligned}\text{Total height of 5 children} &= 5.8 \text{ m} + 1.55 \text{ m} \\ &= 7.35 \text{ m}\end{aligned}$$

Next, find the total height of the 5 children.



$$\begin{aligned}\text{Average height of 5 children} &= 7.35 \text{ m} \div 5 \\ &= 1.47 \text{ m}\end{aligned}$$

The average height of the 5 children is **1.47 m**.

In March, 3 boys and 2 girls saved an average of \$10.

The 3 boys saved an average of \$7.

How much did the 2 girls save in total in March?

$$\begin{aligned}\text{Total amount saved by the 3 boys and 2 girls} &= \$10 \times 5 \\ &= \$50\end{aligned}$$

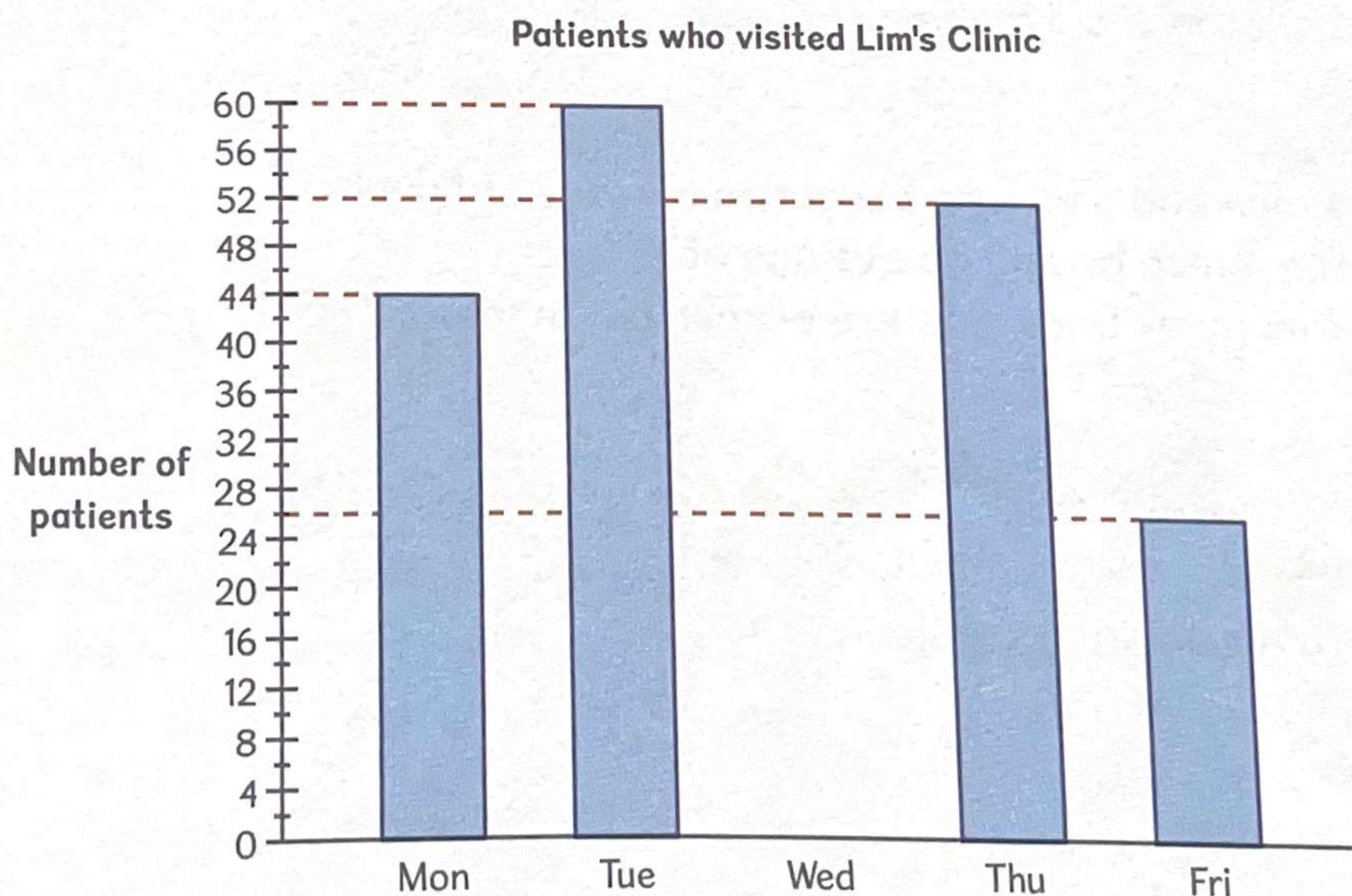
$$\begin{aligned}\text{Total amount saved by the 3 boys} &= \$7 \times 3 \\ &= \$21\end{aligned}$$

$$\begin{aligned}\text{Total amount saved by the 2 girls} &= \$50 - \$21 \\ &= \$29\end{aligned}$$

The 2 girls saved a total of **\$29** in March.

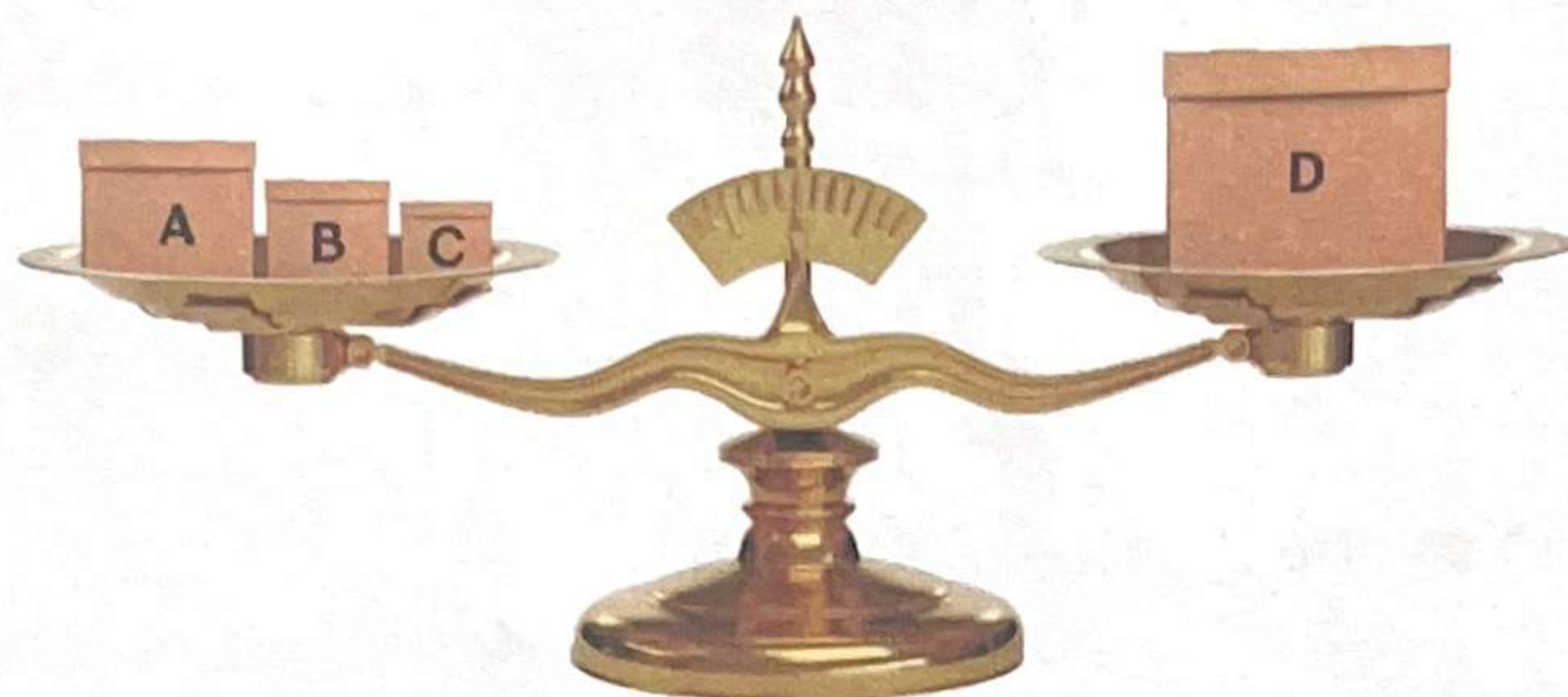


- (a) The average of 5 numbers is 50.
 The sum of 4 of the numbers is 192.
 What is the fifth number?
- (b) The bar graph shows the number of patients at Lim's Clinic over 5 days.



- (i) Find the average number of patients for each day.
- (ii) The average number of patients from Monday to Saturday was 38.
 How many patients were there on Saturday?

- (c) There are 4 boxes, A, B, C and D, on a balance scale.
The average mass of boxes A, B and C is 20 kg.
Find the average mass of the 4 boxes.



- (d) Hasnah has 3 ribbons.
The average length of the 3 ribbons is 8.5 m.
She buys another ribbon that is 7.5 m long.
What is the average length of all the ribbons?

- (e) Mrs Tan bought 3 items from a supermarket.
Her receipt was accidentally torn off.
The average price of the 3 items that she bought was \$12.
The price of the cheapest item was a whole number.
How much did the bottle of kaya cost?

Receipt		
Cooking Oil		\$10.50
Washing Detergent		\$18.
Kaya		
Total		

- (f) 4 men and 6 women bought an average of 12 fruits.
The 4 men bought an average of 10 fruits.
How many fruits did the 6 women buy in total?

- (g) The average mass of 39 students in Class 6A is 40 kg.
When the mass of the teacher is included, the average mass becomes 41 kg.
What is the mass of the teacher?

