

Fractions

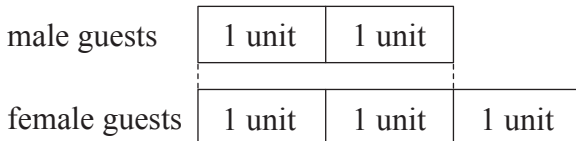
Word Problems

Example

At a party, 2 free drinks were given to each male guest and 3 free drinks were given to each female guest. $\frac{3}{5}$ of the guests were female. How many female guests were there at the party if a total of 936 free drinks were given to the guests?

Solution:

Units representing number of male and female guests:



Since each male guest was given 2 free drinks and each female guest was given 3 free drinks, we can find the number of units representing the free drinks:

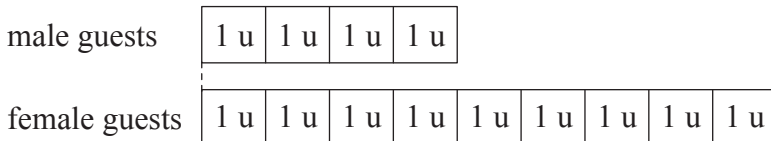
Number of free drinks (in units) given out to male guests

$$\rightarrow 2 \text{ u} \times 2 \text{ free drinks} = 4 \text{ u}$$

Number of free drinks (in units) given out to female guests

$$\rightarrow 3 \text{ u} \times 3 \text{ free drinks} = 9 \text{ u}$$

Units representing number of free drinks for male and female guests:



Total units representing number of free drinks given out $\rightarrow 4 \text{ u} + 9 \text{ u} = 13 \text{ u}$

$13 \text{ u} \rightarrow 936 \text{ free drinks}$

$1 \text{ u} \rightarrow ? \text{ free drinks}$

$$936 \div 13 = 72$$

Next, find the number of female guests at the party:

$$72 \times 3 = 216$$

There were 216 female guests at the party.

Adapted:

Conquer Model Drawing for Upper Primary Levels

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Solutions:

Fractions

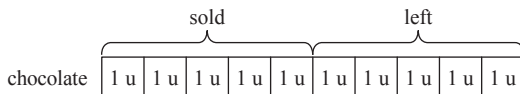
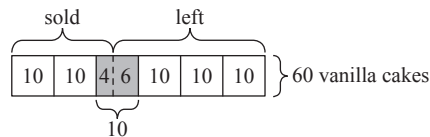
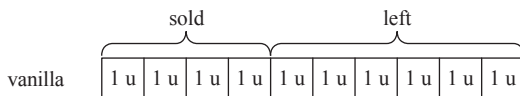
1. Fraction of vanilla cakes sold $\rightarrow \frac{2}{5} = \frac{4}{10}$

There were 60 more vanilla cakes.

Number of vanilla cakes sold from this portion

$$\rightarrow \frac{2}{5} \times 60 = 24$$

Fraction of chocolate cakes sold $\rightarrow \frac{1}{2} = \frac{5}{10}$



First, find the number of units left and number of vanilla cakes left from the 60 vanilla cakes:

Number of units left $\rightarrow 10 \text{ u} - 4 \text{ u} = 6 \text{ u}$

Number of vanilla cakes left $\rightarrow 60 - 24 = 36$

Then, find the number of units left for the chocolate cakes:

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

Now, find the total number of units left for the vanilla cakes and chocolate cakes:

$$6 \text{ u} + 5 \text{ u} = 11 \text{ u}$$

Lastly, find the number of cakes represented by 11 u since there were 113 cakes left:

$$11 \text{ u} + 36 \rightarrow 113$$

$$11 \text{ u} \rightarrow 113 - 36 = 77$$

$$1 \text{ u} \rightarrow 77 \div 11 = 7$$

Number of cakes Mr Wang baked in all at first:

$$1 \text{ u} \rightarrow 7 \text{ cakes}$$

$$20 \text{ u} \rightarrow ? \text{ cakes}$$

$$7 \times 20 = 140 \text{ (vanilla and chocolate cakes)}$$

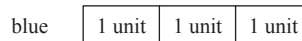
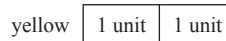
$$140 + 60 = 200 \text{ (as Mr Wang baked 60 more vanilla cakes than chocolate cakes)}$$

Mr Wang baked 200 cakes in all.

2. "The number of yellow boxes is $\frac{2}{3}$ the number of blue boxes."

Explanation:

- There are 2 units for yellow boxes and 3 units for blue boxes.



Since every yellow box contains 4 cups and every blue box contains 3 cups, we can find the number of units representing the cups:

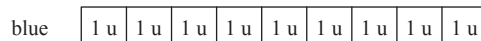
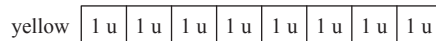
Number of cups (in units) in yellow boxes

$$\rightarrow 2 \text{ units} \times 4 \text{ cups} = 8 \text{ u}$$

Number of cups (in units) in blue boxes

$$\rightarrow 3 \text{ units} \times 3 \text{ cups} = 9 \text{ u}$$

Units representing number of cups in yellow and blue boxes:



Total units representing number of cups in the boxes $\rightarrow 8 \text{ u} + 9 \text{ u} = 17 \text{ u}$

$$17 \text{ u} \rightarrow 2040 \text{ cups}$$

$$1 \text{ u} \rightarrow ? \text{ cups}$$

$$2040 \div 17 = 120$$

— Calculation A

Next, find the difference in number of cups for both boxes since yellow boxes have 8 u of cups and blue boxes have 9 u of cups:

$$9 \text{ u} - 8 \text{ u} = 1 \text{ u}$$

Since the difference is 1 u, the difference in number of cups between them is 120 (see Calculation A). There are 120 more cups in the blue boxes than in the yellow boxes.