



101



> Must-Know
**Challenging
Maths
Word Problems**

Book

4

Based on current Primary Mathematics Syllabus

- Improves student's ability to solve challenging word problems
- Encourages critical thinking
- Various problem-solving strategies revealed
- Step-by-step solutions provided



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4

Joylynn Cheng
B.A., PGDE, M. Sos. Sc.

Name: _____

Class: _____

Preface

101 Must-Know Challenging Maths Word Problems Book 4 presents word problems that test on important concepts so students can learn to **apply general mathematical problem-solving strategies and heuristics confidently.**

What's in this book?

This book comprises word problems often encountered by students in their tests and examinations. The questions are categorized into respective topics in accordance with the current **Primary Mathematics Syllabus.**

Solutions

Detailed step-by-step workings are included in the answer key for every question to show how a problem is solved. **Diagrams and mathematical models** are provided in most solutions to aid students in understanding the problem-solving processes.



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Contents

1

Question Number	Learning Objective	Page Number
1 ~ 9	The Four Operations of Whole Numbers	1 ~ 3
10 ~ 48	Fractions 	4 ~ 16
49 ~ 66	Money	17 ~ 22
67 ~ 70	Mass	23 ~ 24
71 ~ 78	Area and Perimeter	24 ~ 27
2-part Word Problems		
79 ~ 80	The Four Operations of Whole Numbers	27
81 ~ 95	Fractions 	28 ~ 33
96 ~ 99	Money	34 ~ 35
100 ~ 101	Area and Perimeter 	36
Solutions 1 ~ 101		S1 ~ S39

Question1

On the first day of a school camp, there were 396 children. 27 boys left the camp on the second day. If there were twice as many boys as girls who remained at the camp, how many boys were there on the first day of the camp?

Answer: _____

Question2

On Monday, Farmer Tom collected three times as many eggs as Farmer Jack. On Tuesday, Farmer Tom sold 160 eggs. Farmer Jack then had twice as many eggs as Farmer Tom. How many eggs did Farmer Jack have?

Answer: _____

Question3

When George is 15 years old, his sister is 8 years old and his father is 45 years old. How old will George's sister be when George is half his father's age?

Answer: _____

Question

Linda and Serene had an equal number of balloons. After Linda used 16 balloons, Serene had 3 times as many balloons as Linda. How many balloons did Serene have?

4

Answer: _____

Question

Jennifer had a party. She wanted to give an equal number of balloons to her six friends. If one of her friends did not turn up for the party, the rest would be able to receive another 2 balloons each. How many balloons did Jennifer have?

5

Answer: _____

Question

Anna had three times as many beads as Zoe. They had 480 beads altogether. Mrs Taylor gave an equal number of beads to each of them. Zoe then had half the number of beads that Anna had. How many beads did Mrs Taylor give them?

6

Answer: _____

Question7

Helen had to arrange some chairs in a fixed number of rows. She estimated that there were more than 30 but fewer than 70 chairs. If she put 8 chairs in one row, she would be 7 chairs short. If she put 7 chairs in one row, she would have 2 chairs left. How many chairs were there?

Answer: _____

Question8

Zack and Mandy shared 120 sweets. After Zack gave Mandy 10 sweets, he had twice as many sweets as Mandy. How many sweets did each of them have at first?

Answers: Mandy: _____

Zack: _____

Question9

A basket contained 4 times as many blue balls as red balls. After 21 blue balls were taken away, there were twice as many red balls as blue balls. How many balls were there in the basket at first?

Answer: _____

Question

10

Nancy had $\frac{1}{3}$ as much money as Ben. Lucy had \$20 more than Ben. They had \$132 altogether. How much did each of them have?

Answers: Nancy: _____

Ben: _____

Lucy: _____

Question

11

There were three parcels, A, B and C. The mass of Parcel B was $\frac{3}{4}$ kg less than the mass of Parcel A. The mass of Parcel C was $\frac{2}{3}$ kg more than the mass of Parcel B. If the mass of Parcel A was $4\frac{1}{2}$ kg, what was the mass of Parcel C?

Answer: _____

Question

12

Mr Rice spent $\frac{1}{5}$ of his salary on food and $\frac{2}{3}$ on clothing. Half of the remaining amount was given to his wife and he saved the rest. If he had saved \$520, what was Mr Rice's salary?

Answer: _____



House Number Problem.

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Question

13

Sam had some marbles. He gave $\frac{1}{7}$ of them to his brother. $\frac{2}{3}$ of the remaining marbles were given to his cousin. The rest were kept in a box. If 48 marbles were kept in the box, how many more marbles did Sam give to his cousin than to his brother?

Answer: _____

Question

14

Mrs Anderson bought 60 eggs. She used $\frac{2}{5}$ of them to bake cakes. She used some eggs to bake cookies. She had 12 eggs left. How many eggs did she use for baking cookies?

Answer: _____

Question

15

$\frac{2}{7}$ of the members in a country club are men. 1050 women in the country club are below 50 years old. If there are 960 more women than men in the country club, how many women are above 50 years old?

Answer: _____

Question

16

Stephanie had a total of 80 pieces of \$2 and \$10 notes. After spending $\frac{2}{5}$ of her \$2 notes and 8 pieces of her \$10 notes, she had an equal number of \$2 and \$10 notes left. How much money did Stephanie have at first?

Answer: _____

Question

17

$\frac{3}{5}$ of the animals on a farm are ducks and the rest are chickens. $\frac{1}{5}$ of the chickens are brown and the rest are white. If there are 24 white chickens, how many more ducks than chickens are there on the farm?

Answer: _____

Question

18

Susan earns \$2450 a month. She spends $\frac{2}{5}$ of it and saves the rest. Andy earns \$800 less than Susan. He spends \$180 more than Susan each month and saves the rest. How much more can Susan save than Andy in half a year?

Answer: _____

Question19

On Monday, a shopkeeper sold $12\frac{1}{2}$ kg of flour. He sold $\frac{5}{6}$ kg more flour on Tuesday than on Monday. On Wednesday, he sold $1\frac{1}{3}$ kg less flour than on Tuesday. He then had $\frac{1}{3}$ kg of flour left in his shop. How much flour did he have at first?

Answer: _____

Question20

$\frac{2}{7}$ of the toy cars in a box are silver. $\frac{1}{10}$ of the remainder are yellow and the rest are black. If there are 28 silver toy cars, how many black toy cars are there in the box?

Answer: _____

Question21

Andrew and Ryan shared some chocolates. Andrew gave away $\frac{1}{4}$ of his chocolates. $\frac{1}{4}$ of the given chocolates were taken by Ryan. Ryan then had the same number of chocolates as Andrew. If Andrew gave away 12 chocolates, how many chocolates did each of them have at first?

Answers: Andrew: _____

Ryan: _____

Question22

Boxes A and B contained 112 pencils. When $\frac{1}{5}$ of the pencils in box A were transferred to box B, both boxes contained the same number of pencils. How many more pencils were there in box A than in box B at first?

Answer: _____

Question23

Andrea spent $\frac{1}{5}$ of her salary on food and $\frac{1}{10}$ on transport. She gave the remaining amount to her three brothers equally. One of her brothers spent all his money on a radio and a watch that cost \$86 and \$145 respectively. What was Andrea's salary?

Answer: _____

Question24

Ann and James had some stickers. After Ann gave James $\frac{1}{4}$ of her stickers, James had twice as many stickers as Ann. If they had a total of 117 stickers, how many stickers did each of them have in the beginning?

Answers: James: _____

Ann: _____



Question**25**

Mrs Brown gave $\frac{4}{7}$ of her money to her son. He spent $\frac{2}{5}$ of the money on a pair of shoes and the rest on two books that cost \$18 each. How much did Mrs Brown have at first?

Answer: _____

Question**26**

Ray sold $\frac{2}{3}$ of the charity tickets that Cindy sold. Cindy sold $\frac{3}{4}$ of the charity tickets that Gina sold. Each charity ticket cost \$2. The children collected a total of \$648. How many charity tickets did Gina sell?

Answer: _____

Question**27**

There were $\frac{3}{4}$ as many sweets in box A as in box B. $\frac{1}{2}$ of the sweets in box A and $\frac{3}{8}$ of the sweets in box B were removed. There were then 152 sweets left in both boxes altogether. How many sweets were there in each box at first?

Answers: Box A: _____

Box B: _____

Question28

After their shopping trip, Mike spent $\frac{3}{5}$ of his money, Evon spent $\frac{1}{2}$ of hers and Sue spent \$50. They then had the same amount of money left. If the total amount of money left was \$54, what was the total amount of money Mike and Sue had at first?

Answer: _____

Question29

A baker sold twice as many buns on Sunday than on Saturday. On Monday, he sold $\frac{1}{4}$ of the buns he sold on Sunday. If he sold a total of 1260 buns during the three days, how many buns did he sell on Sunday?

Answer: _____

Question30

Joan and Alan had some money. $\frac{2}{3}$ of Joan's money was $\frac{1}{2}$ of what Alan had. If Alan spent all his money on a book that cost \$45 and a wallet that cost \$98, how much did Joan and Alan have altogether?

Answer: _____

Question31

Boxes A and B contained 150 marbles altogether. When $\frac{1}{3}$ of the marbles in box A were transferred to box B and 12 marbles were taken out from box B, there were twice as many marbles in box B than in box A. How many marbles were there in box B in the beginning?

Answer: _____

Question32

During a sale, Betty bought a watch at $\frac{3}{5}$ its normal price. She then had \$220 left. If she had bought the watch at its normal price, she would be \$10 short. What was the normal price of the watch?

Answer: _____

Question33

Mr Smith sold $\frac{1}{4}$ of his eggs on Monday and $\frac{1}{4}$ of the remainder on Tuesday. The rest were sold on Wednesday. If he sold 144 eggs on Wednesday, how many eggs did he have in the beginning?

Answer: _____

Question

34

Sam could buy 4 magazines and 3 books with all his money. He decided to buy 2 magazines and a book. He then had \$84 left. If a magazine cost $\frac{1}{3}$ the price of a book, how much did Sam have at first?

Answer: _____

Question

35

A farmer sold some eggs in the morning. He then packed the remaining eggs into 15 cartons with 25 eggs in each carton. If the number of eggs he sold was $\frac{3}{5}$ of the number of eggs he packed, how many eggs did the farmer have at first?

Answer: _____

Question

36

There were some candles in a box. $\frac{1}{3}$ of the candles were green. There were twice as many blue candles as red candles and $\frac{1}{4}$ as many yellow candles as red candles. If there were 24 red candles, how many candles were there in the box altogether?

Answer: _____

Question

37

There were twice as many oranges as apples in a box and three times as many pears as apples. When $\frac{1}{4}$ of the oranges were eaten, there were 21 oranges left in the box. How many pieces of fruit were there in the box at first?

Answer: _____

Question

38

Elaine had some sweets. When she ate $\frac{2}{7}$ of them and gave 36 sweets to her brother, she had $\frac{2}{7}$ of the sweets left. How many sweets did she have at first?

Answer: _____

Question

39

Jug A contained $3\frac{5}{12}$ l of water. Jug A contained $1\frac{2}{3}$ l less water than jug B. Jug C contained $\frac{5}{6}$ l less water than jug B. The water in the three jugs was poured into a container. How much water was there in the container in the end?

Answer: _____

Question

40

Mrs Crawford baked some pies. She gave $\frac{1}{3}$ of them to her neighbour. She then gave $\frac{5}{12}$ of the remainder to a children's home. The rest of the pies were packed into 25 boxes with 14 pies in each box. How many pies did Mrs Crawford bake altogether?

Answer: _____

Question

41

Sandy spent $\frac{3}{5}$ of her money in a toy shop on a teddy bear for \$38 and a toy train for \$46. The remaining money was then spent on 5 similar books. How much did each book cost?

Answer: _____

Question

42

Jeff sold 120 oranges on Friday. He sold 100 fewer oranges on Friday than on Saturday. The number of oranges he sold on Sunday was three times the number he sold on Friday. If he had $\frac{2}{7}$ of the oranges left, how many oranges did he have at first?

Answer: _____

Question**43**

There were 120 more eggs in box A than in box B. There were $\frac{2}{3}$ as many eggs in box C than in box B. When half of the eggs in box B were sold, there were 222 eggs left in box B. How many eggs were there altogether?

Answer: _____

Question**44**

Alfred had 72 mugs. He sold some of them for \$144. He then had $\frac{7}{8}$ of the mugs left. How much would he get if he had sold all the mugs?

Answer: _____

Question**45**

There were some chicken wings and fishballs in a pack. After $\frac{2}{7}$ of the chicken wings were taken out from the pack, there were $\frac{3}{10}$ as many chicken wings as fishballs in the pack. If there were 50 fishballs, how many chicken wings were there in the pack at first?

Answer: _____

Question

46

There were half as many yellow T-shirts as blue T-shirts in a box and 15 more green T-shirts than blue T-shirts. There were 27 yellow T-shirts. How many T-shirts were left in the box when $\frac{4}{5}$ of the T-shirts were taken out?

Answer: _____

Question

47

There were some pears in boxes A and B. When $\frac{1}{3}$ of the pears were taken out from box A and $\frac{5}{9}$ of the pears were taken out from box B, there was an equal number of pears in both boxes. If 84 pears were taken out, how many pears were there in both boxes at first?

Answer: _____

Question

48

Agnes had a total of 135 balloons. There were three times as many red balloons as green balloons, twice as many blue balloons as green balloons and some purple balloons. When 12 green balloons burst, there were $\frac{1}{3}$ as many green as purple balloons left. Find the total number of purple and green balloons Agnes had at first.

Answer: _____

Question49

Michael paid \$14 for 3 similar mangoes and a durian. The durian cost \$2 more than each mango. What was the total cost of 5 mangoes and 4 durians?

Answer: _____

Question50

A blouse costs half as much as a shirt. If the total cost of 3 similar blouses and a shirt is \$200, what is the cost of 7 blouses and 4 shirts?

Answer: _____

Question51

Colin paid \$12 for 4 buns and 4 cakes. 3 buns cost as much as 2 cakes. What was the total cost of 6 buns and 9 cakes?

Answer: _____

Question52

The total cost of a radio, a clock and a blender is \$215. The radio costs \$35 more than the blender. The blender costs \$45 more than the clock. What is the cost of the radio?

Answer: _____

Question53

Betty had twice as much money as Johnson. After Betty spent \$350, she had \$25 less than Johnson. Find the total amount of money they had at first.

Answer: _____

Question54

Connie and Alice had an equal amount of money at first. Connie gave Alice \$126 and Alice had 4 times as much money as Connie in the end. How much money did Connie have at first?

Answer: _____

Question

55

Terence and Winnie had a total of 27 coins. When Terence gave Winnie $\frac{1}{4}$ of his coins, she had twice as many coins as him. Winnie then found out that she had twice as many twenty-cent coins as ten-cent coins. How much money did she have in the end?

Answer: _____

Question

56

Hazel had enough money to buy 25 chocolate cookies. Each chocolate cookie cost as much as 2 butter cookies. Hazel borrowed another \$6 from her mother to buy 20 chocolate cookies and 20 butter cookies. How much money did Hazel have at first?

Answer: _____

Question

57

A book costs three times as much as a pen. 5 similar pens cost as much as a photo frame. If 3 similar photo frames cost \$74.25, what is the total cost of a book, a pen and a photo frame?

Answer: _____

Question58

For every T-shirt that Joel sells, he will receive \$12. He will receive another \$5 for every set of 10 T-shirts he sells. If he sells 100 T-shirts, he will receive an additional \$50 bonus. How many T-shirts does Joel have to sell to receive \$1372 in total?

Answer: _____

Question59

4 boxes of coloured pencils cost as much as 3 boxes of paint. Natalie had just enough money to buy 7 boxes of paint and 2 boxes of coloured pencils. If a box of paint cost \$5.40, how much would Natalie have left if she only bought 5 boxes of paint?

Answer: _____

Question60

Jeffrey had 4 times as many twenty-cent coins as ten-cent coins and $\frac{1}{3}$ as many fifty-cent coins as ten-cent coins. If he had 2 fifty-cent coins, how much money would he have left if he spent \$2.75 on a pair of socks?

Answer: _____

Question

61

Michael had some flowers. He sold $\frac{2}{3}$ of them at 90¢ each and the rest at 50¢ each. Fanny sold the same number of flowers at 80¢ each, collecting a total of \$7.20. How much did Michael collect?

Answer: _____

Question

62

When Nelly bought 5 pencils, she spent the same amount as Benjamin who bought 3 pens. If Benjamin spent $\frac{2}{7}$ of his money buying the pens and he had \$45 left, what was the total cost of a pencil and a pen?

Answer: _____

Question

63

Ron earns \$12 an hour on weekdays and twice as much on weekends. Ron works 8 hours a day on weekdays and 5 hours a day on Saturdays and Sundays. How much will he earn in 2 weeks if he works every day?

Answer: _____

Question

64

The cost of a magazine and 2 books is \$34. The cost of 3 magazines and 4 books is \$76. If Tasha buys 13 magazines and 9 books, how much money does she spend?

Answer: _____

Question

65

An apple and two oranges cost \$2.30. Two apples and an orange cost \$2.50. What is the cost of 4 apples and 6 oranges?

Answer: _____

Question

66

Mrs Bellamont sold twice as many butter cookies as chocolate chip cookies and twice as many chocolate chip cookies as coconut cookies. Each box of 4 cookies was sold for \$4.50. 80 chocolate chip cookies were sold. How much would Mrs Bellamont collect from the sale of all the cookies?

Answer: _____

Question**67**

The total mass of Gilbert and Sean was 124 kg. If Sean lost $\frac{1}{4}$ of his mass, he would be 45 kg. How much heavier was Gilbert compared to Sean?

Answer: _____

Question**68**

4 parcels, A, B, C and D have a total mass of 100.75 kg. Parcel A weighs 12.45 kg more than parcel B. Parcel B weighs 8.4 kg less than parcel C. Parcel C weighs 24.2 kg. How much heavier is parcel D than parcel C?

Answer: _____

Question**69**

Box A was 3.45 kg heavier than box B. When 1.2 kg of items in box A was removed, box A became four times as heavy as box B. What was the mass of box A in the beginning?

Answer: _____

Question

70

The mass of a box is 45 kg when it is full. When half of the items in the box are taken out, the mass of the remaining items and the box is 33 kg. What is the mass of 6 empty boxes?

Answer: _____

Question

71

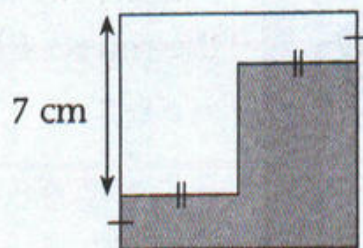
9 small squares are used to form a large square. If each side of a small square is 7 cm, what is the area of the large square?

Answer: _____

Question

72

The area of a square is 81 cm^2 . Find the perimeter of the unshaded portion.



Answer: _____

Question**73**

The perimeter of a rectangle is 288 cm. The length is three times the breadth. Find the area of the rectangle.

Answer: _____

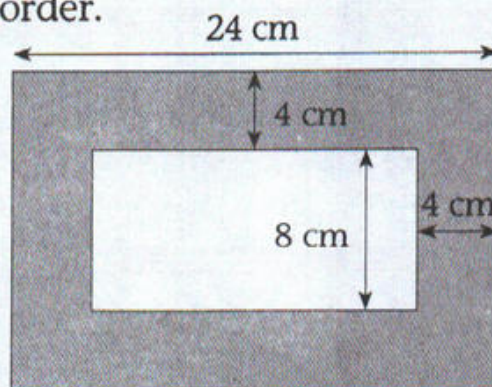
Question**74**

A wire was cut and $\frac{2}{3}$ of it was bent to form a square. The remaining length of the wire was bent to form a rectangle. The area of the square was 36 cm^2 . What was the length of the wire at first?

Answer: _____

Question**75**

Jenny draws a picture on a piece of paper with a border of 4 cm around the picture. The length of the paper is 24 cm. If the breadth of the picture is 8 cm, find the area of the border.



Answer: _____

Question

76

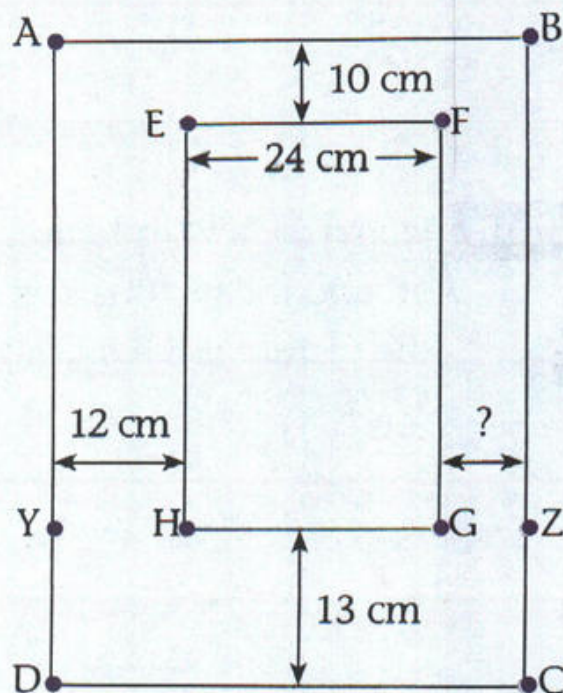
The perimeter of a square is half the area of a rectangle. A wire is bent to form 3 such squares and 2 such rectangles. 20 cm of wire is left. If the length of the rectangle is 15 cm and its breadth is 12 cm, find the length of the wire.

Answer: _____

Question

77

The perimeter of rectangle EFGH is 180 cm. YH is twice GZ. If EF is 24 cm and YH is 12 cm, what is the area of rectangle ABCD?

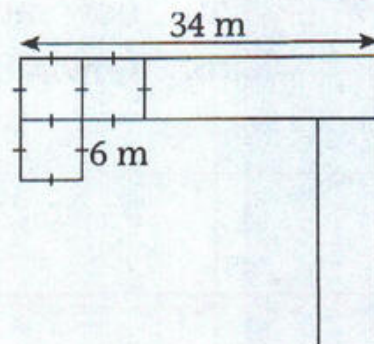


Answer: _____

Question

78

Mr Cox wants to put a fence around his garden. His garden is in the shape of two similar rectangles and three similar squares. If it costs \$23 to fence two metres of his garden, how much will Mr Cox have to pay to fence the entire garden?



Answer: _____

Question

79

Mr Richard is five times as old as his son now. In 8 years' time, their total ages will be 58 years.

- What is his son's present age?
- How old will Mr Richard be in 8 years' time?

Answers: (a) _____

(b) _____

Question

80

Jane and Mark had \$240 altogether. When Jane gave Mark half of her money, Mark had four times as much money as Jane.

- How much did Jane have at first?
- How much did Mark have at first?

Answers: (a) _____

(b) _____

Question81

Mrs Fleming spent $\frac{1}{3}$ of her money on a handbag and $\frac{3}{4}$ of the remainder on jewellery. She then saved the rest. If she spent \$450 on a bracelet and \$90 on a pair of earrings,

- (a) how much money did she save?
- (b) how much money did she have at first?

Answers: (a) _____

(b) _____

Question82

Sean had some money. He used $\frac{2}{3}$ of it to buy a watch and spent $\frac{3}{4}$ of the remainder on a wallet. If the watch cost \$65 more than the wallet,

- (a) how much money had Sean left?
- (b) how much money did Sean have at first?

Answers: (a) _____

(b) _____

Question83

$\frac{1}{3}$ of the books on a shelf are English books. $\frac{1}{2}$ of the remainder are Chinese books and the rest are Malay books. $\frac{1}{4}$ of the Chinese books are torn. If 54 Chinese books are not torn,

- (a) how many Malay books are there?
- (b) how many books are there altogether?

Answers: (a) _____

(b) _____

Question**84**

There were 250 students in a room. $\frac{2}{5}$ of the girls and $\frac{1}{10}$ of the boys wore spectacles. If the same number of boys and girls did not wear spectacles,

- (a) how many boys wore spectacles?
- (b) how many girls wore spectacles?

Answers: (a) _____

(b) _____

Question**85**

At a football match, there were three times as many men as women and twice as many men as boys. $\frac{1}{3}$ of the children were girls. If there were 120 girls,

- (a) how many boys were there?
- (b) how many adults were there?

Answers: (a) _____

(b) _____

Question**86**

$\frac{2}{3}$ of the people at a fair wore hats. $\frac{1}{6}$ of those who wore hats were men and the rest were women. There were 124 more women than men who wore hats at the fair.

- (a) How many people did not wear hats?
- (b) How many people were there at the fair?

Answers: (a) _____

(b) _____

Question**87**

Two numbers are written on a piece of paper. $\frac{1}{5}$ of the first number is 12 more than $\frac{1}{2}$ of the second number. The sum of the two numbers is 221.

- (a) What is the first number?
- (b) What is the second number?

Answers: (a) _____

(b) _____

Question**88**

Gracia had some pens. $\frac{2}{5}$ of the pens were blue and $\frac{1}{6}$ of the remainder were black. The rest were red and green. There were 12 more red pens than blue pens. If there were 24 green pens,

- (a) how many red and blue pens did Gracia have?
- (b) how many pens did Gracia have altogether?

Answers: (a) _____

(b) _____

Question**89**

The total number of oranges in cartons A and B was 324. When $\frac{3}{7}$ of the oranges in carton A were sold, there were twice as many oranges in carton A than in carton B.

- (a) How many oranges were there in carton A at first?
- (b) How many oranges were there in carton B at first?

Answers: (a) _____

(b) _____

Question

90

On Monday, Mr Hall sold 246 lemons and Mr Clement sold half as many lemons as Mr Hall. On Tuesday, Mr Hall sold 83 lemons and Mr Clement sold some lemons. The total number of lemons sold by Mr Clement over the two days was $\frac{4}{7}$ the number that Mr Hall sold.

- (a) How many lemons did Mr Clement sell on Tuesday?
(b) How many lemons did both men sell altogether on both days?

Answers: (a) _____

(b) _____

Question

91

Cleo and Diana were given the same amount of money each day. Cleo spent $\frac{4}{7}$ of her money and Diana spent $\frac{2}{3}$ of her money every day. They then saved the rest of their money. After a week, Cleo saved \$56 more than Diana.

- (a) How much money did Cleo spend a day?
(b) How much money did Diana spend a day?

Answers: (a) _____

(b) _____

Question92

A box of apples costs $\frac{2}{7}$ the price of a box of oranges. There are $\frac{1}{3}$ as many apples as oranges in one box. If there are 90 oranges in one box and an orange costs 70¢,

- (a) how much does a box of apples cost?
- (b) how many apples are there in one box?

Answers: (a) _____

(b) _____

Question93

Katherine and Leslie had a total of 140 sweets. When Leslie gave Katherine $\frac{1}{4}$ of his sweets and Katherine ate 5 of her sweets, Katherine had twice as many sweets as Leslie.

- (a) How many sweets did Leslie have at first?
- (b) How many sweets did Katherine have at first?

Answers: (a) _____

(b) _____



More on Fractions.

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Question

94

There were some pears and apples in a box. If 4 pears were taken out from the box, there would be an equal number of pears and apples in the box. If 7 pears were taken out from the box, there would be $\frac{4}{5}$ as many pears as apples in the box.

- (a) How many apples were there in the box at first?
- (b) How many pears were there in the box at first?

Answers: (a) _____

(b) _____

Question

95

There were some spectators at a tennis match. $\frac{1}{3}$ of them belonged to the tennis club. $\frac{1}{6}$ of those who did not belong to the club were adults and the rest were children. If there were 120 more children than adults who did not belong to the club,

- (a) how many people belonged to the tennis club?
- (b) how many spectators were there at the tennis match?

Answers: (a) _____

(b) _____

Question

96

Five apples cost as much as two papayas. Mrs Lynch could buy 18 papayas. If she had bought 12 papayas, she would have \$30 left.

- (a) How much did each papaya cost?
- (b) How much would three apples and three papayas cost?

Answers: (a) _____

(b) _____

Question

97

Joey had some twenty-cent and ten-cent coins. When she used $\frac{1}{3}$ of them, she had \$9.60 left. She used half as many twenty-cent coins as ten-cent coins.

- (a) How many twenty-cent coins did she use?
- (b) How many ten-cent coins did she use?

Answers: (a) _____

(b) _____

Question**98**

James spent $\frac{1}{5}$ of his money on a pair of shoes and $\frac{1}{10}$ on a book. He saved $\frac{2}{7}$ of the remaining money and the rest of the money was given to and shared equally among his 8 brothers. If each brother received \$5,

- (a) how much money did James have at first?
- (b) how much money did James spend?

Answers: (a) _____

(b) _____

Question**99**

Vivian and her brother had some money. After spending $\frac{2}{5}$ of his money, her brother had \$78 left. Vivian spent $\frac{1}{3}$ of her money and had the same amount of money left as her brother.

- (a) How much money did Vivian have at first?
- (b) How much money did Vivian's brother have at first?

Answers: (a) _____

(b) _____

Question**100**

A piece of wire is cut into two equal pieces. One piece is bent to form two similar squares with sides 12 cm. The other piece is bent into three similar rectangles, each with a breadth of 6 cm.

- Find the length of the piece of wire at first.
- Find the area of each rectangle.

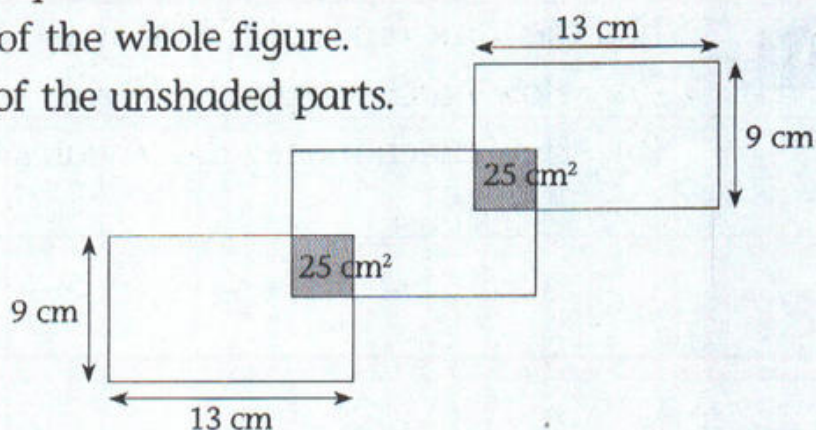
Answers: (a) _____

(b) _____

Question**101**

The figure shows 3 identical rectangles. The shaded areas where the rectangles overlap form squares of 25 cm^2 each.

- Find the perimeter of the whole figure.
- Find the total area of the unshaded parts.



Answers: (a) _____ cm

(b) _____ cm^2



More on Area and Perimeter.

Download from www.onlineresources.sapgrp.com

101



> *Must-Know*

Challenging Maths Word Problems

Solutions

Book

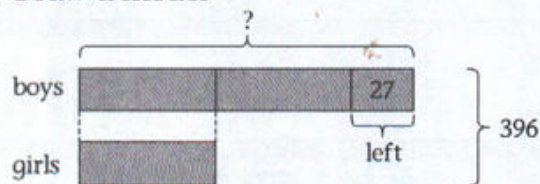
4



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Solution to Question 1

Step 1 : Draw a model



Step 2 : Find how many children remained at the camp

$$396 - 27 = 369$$

Step 3 : Find the number of girls at the camp

$$3 \text{ units} \rightarrow 369$$

$$1 \text{ unit} \rightarrow 369 \div 3 = 123$$

Step 4 : Find the number of boys there were on the first day of camp

$$2 \text{ units} \rightarrow 2 \times 123 = 246$$

$$246 + 27 = 273$$

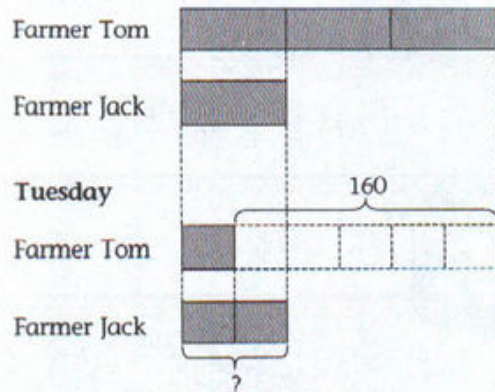
There were 273 boys on the first day of the camp.

Answer: 273 boys

Solution to Question 2

Step 1 : Draw a model

Monday



Step 2 : Find the number of eggs Farmer Tom had left

$$5 \text{ units} \rightarrow 160$$

$$1 \text{ unit} \rightarrow 160 \div 5 = 32$$

Step 3 : Find the number of eggs Farmer Jack had

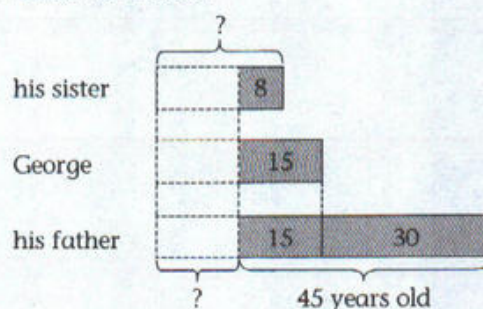
$$2 \text{ units} \rightarrow 2 \times 32 = 64$$

Farmer Jack had 64 eggs.

Answer: 64 eggs

Solution to Question 3

Step 1 : Draw a model



Step 2 : Find the number of years for George to be half of his father's age

$$1 \text{ unit} + 15 = 30$$

$$1 \text{ unit} \rightarrow 30 - 15 = 15$$

Step 3 : Find his sister's age in 15 years' time

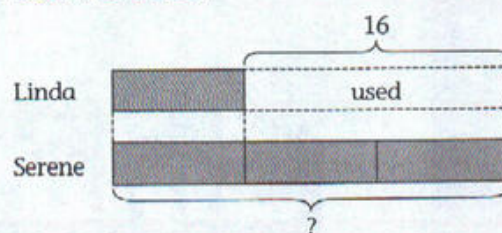
$$15 + 8 = 23$$

George's sister will be 23 years old when George is half his father's age.

Answer: 23 years old

Solution to Question 4

Step 1 : Draw a model



Step 2 : Find the number of balloons Linda had after using 16 balloons

$$2 \text{ units} \rightarrow 16$$

$$1 \text{ unit} \rightarrow 16 \div 2 = 8$$

Step 3 : Find the number of balloons Serene had

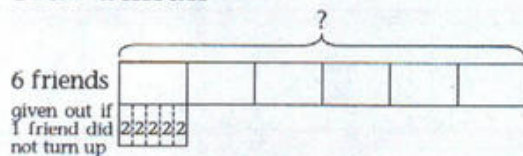
$$3 \text{ units} \rightarrow 3 \times 8 = 24$$

Serene had 24 balloons.

Answer: 24 balloons

Solution to Question 5

Step 1 : Draw a model



Step 2 : Find the number of balloons that would be given out if 1 friend did not turn up
 $5 \times 2 = 10$

Step 3 : Find the number of balloons that Jennifer had
 $6 \times 10 = 60$

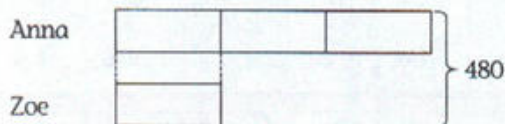
Jennifer had 60 balloons.

Answer: 60 balloons

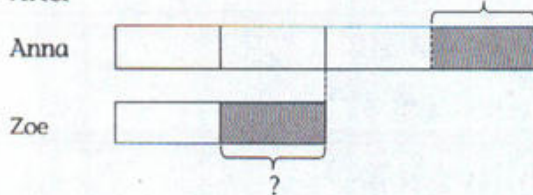
Solution to Question 6

Step 1 : Draw a model

Before



After



Step 2 : Find the number of beads Zoe had

4 units $\rightarrow 480$

1 unit $\rightarrow 480 \div 4 = 120$

Step 3 : Find the total number of beads that Mrs Taylor gave them

(*From the model, Anna has 2 units more than Zoe even after receiving the same number of beads from Mrs Taylor.)

2 units $\rightarrow 2 \times 120 = 240$

Mrs Taylor gave them 240 beads.

Answer: 240 beads

Solution to Question 7

Thinking skills:
Spatial
Visualisation

Method 1

Step 1 : Use the 'Guess and Check' method to find the total number of chairs

8 chairs in 1 row

Number of rows	1	2	3	4	5	6	7	8	9
Number of chairs	8	16	24	32	40	48	56	64	72
Number of chairs short	7	7	7	7	7	7	7	7	7
Total number of chairs	1	9	17	25	33	41	49	57	65

7 chairs in 1 row

Number of rows	1	2	3	4	5	6	7	8	9
Number of chairs	7	14	21	28	35	42	49	56	63
Number of chairs left	2	2	2	2	2	2	2	2	2
Total number of chairs	9	16	23	30	37	44	51	58	65

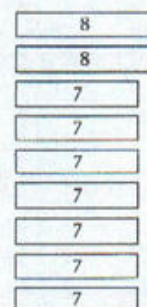
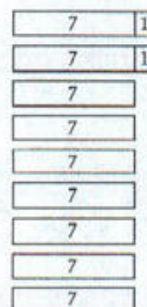
Number of rows : 9

Total number of chairs : 65

Method 2

Step 1 : Draw diagrams

If she placed 7 chairs in one row, she would have 2 chairs left.



If she placed 8 chairs in one row, she would be 7 chairs short.

Step 2 : Find the total number of chairs (see diagram on the left)

$$7 \times 9 = 63$$

$$63 + 2 = 65$$

or

Find the total number of chairs (see diagram on the right)

$$8 \times 2 = 16$$

$$7 \times 7 = 49$$

$$16 + 49 = 65$$

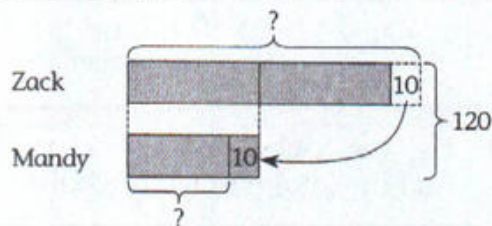
There were 65 chairs.

Answer: 65 chairs

Solution to Question

8

Step 1 : Draw a model



Step 2 : Find the number of sweets Mandy had in the end

$$3 \text{ units} \rightarrow 120$$

$$1 \text{ unit} \rightarrow 120 \div 3 = 40$$

Step 3 : Find the number of sweets Mandy had at first

$$40 - 10 = 30$$

Step 4 : Find the number of sweets Zack had at first

$$2 \text{ units} \rightarrow 2 \times 40 = 80$$

$$80 + 10 = 90$$

Mandy had 30 sweets and Zack had 90 sweets at first.

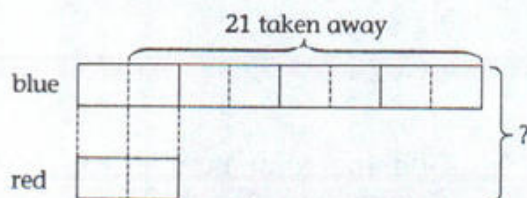
Answers: Mandy: 30 sweets

Zack: 90 sweets

Solution to Question

9

Step 1 : Draw a model



Step 2 : Find the total number of balls at first

$$7 \text{ units} \rightarrow 21$$

$$1 \text{ unit} \rightarrow 21 \div 7 = 3$$

$$10 \text{ units} \rightarrow 10 \times 3 = 30$$

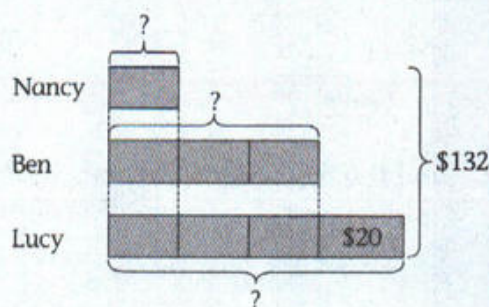
There were 30 balls in the basket at first.

Answer: 30 balls

Solution to Question

10

Step 1 : Draw a model



Step 2 : Find the amount of money Nancy had

$$\$132 - \$20 = \$112$$

$$7 \text{ units} \rightarrow \$112$$

$$1 \text{ unit} \rightarrow \$112 \div 7 = \$16$$

Step 3 : Find the amount of money Ben had

$$3 \text{ units} \rightarrow 3 \times \$16 = \$48$$

Step 4 : Find the amount of money Lucy had

$$\$48 + \$20 = \$68$$

Nancy had \$16.

Ben had \$48.

Lucy had \$68.

Answers: Nancy: \$16

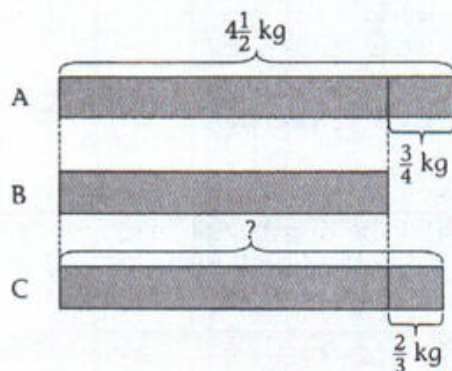
Ben: \$48

Lucy: \$68

Solution to Question

11

Step 1 : Draw a model



Step 2 : Find the mass of parcel B

Remember to change to a common denominator before subtracting

$$\begin{aligned} 4\frac{1}{2} \text{ kg} - \frac{3}{4} \text{ kg} &= \frac{9 \times 2}{2 \times 2} \text{ kg} - \frac{3}{4} \text{ kg} \\ &= \frac{18}{4} \text{ kg} - \frac{3}{4} \text{ kg} \\ &= \frac{15}{4} \text{ kg} \\ &= 3\frac{3}{4} \text{ kg} \end{aligned}$$

$$1 = \frac{4}{4}$$

Step 3 : Find the mass of parcel C

Remember to change to a common denominator before adding

$$\begin{aligned} 3\frac{3}{4} \text{ kg} + \frac{2}{3} \text{ kg} &= \frac{15 \times 3}{4 \times 3} \text{ kg} + \frac{2 \times 4}{3 \times 4} \text{ kg} \\ &= \frac{45}{12} \text{ kg} + \frac{8}{12} \text{ kg} \\ &= \frac{53}{12} \text{ kg} \\ &= 4\frac{5}{12} \text{ kg} \end{aligned}$$

$$1 = \frac{12}{12}$$

The mass of Parcel C was $4\frac{5}{12}$ kg.

Answer: $4\frac{5}{12}$ kg

Solution to Question

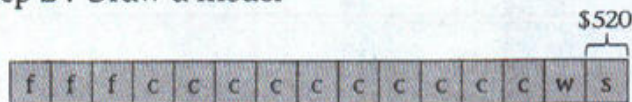
12

Step 1 : Change $\frac{1}{5}$ and $\frac{2}{3}$ into equivalent fractions

$$\frac{1 \times 3}{5 \times 3} = \frac{3}{15}$$

$$\frac{2 \times 5}{3 \times 5} = \frac{10}{15}$$

Step 2 : Draw a model



f : food
c : clothing
w : wife
s : savings

Step 3 : Find Mr Rice's salary

$$\begin{aligned} 1 \text{ unit} &\rightarrow \$520 \\ 15 \text{ units} &\rightarrow 15 \times \$520 \\ &= \$7800 \end{aligned}$$

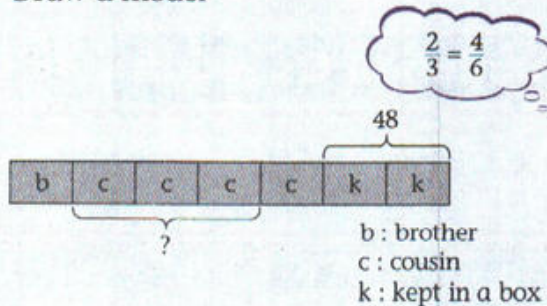
Mr Rice's salary was \$7800.

Answer: \$7800

Solution to Question

13

Step 1 : Draw a model



b : brother
c : cousin
k : kept in a box

Step 2 : Find the number of marbles Sam gave to his brother

$$\begin{aligned} 2 \text{ units} &\rightarrow 48 \\ 1 \text{ unit} &\rightarrow 48 \div 2 = 24 \end{aligned}$$

Step 3 : Find how many more marbles Sam gave to his cousin than to his brother

$$\begin{aligned} 4 \text{ units} - 1 \text{ unit} &= 3 \text{ units} \\ 3 \text{ units} &\rightarrow 3 \times 24 = 72 \end{aligned}$$

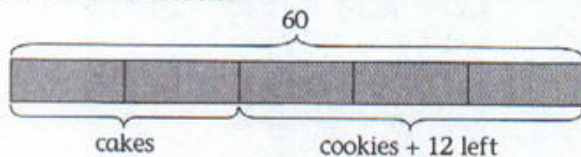
Sam gave 72 more marbles to his cousin than to his brother.

Answer: 72 marbles

Solution to Question

14

Step 1 : Draw a model



Step 2 : Find the number of eggs she used to bake cakes

$$5 \text{ units} \rightarrow 60$$

$$1 \text{ unit} \rightarrow 60 \div 5 = 12$$

$$2 \text{ units} \rightarrow 2 \times 12 = 24$$

Step 3 : Find the number of eggs she used for baking cookies

$$60 - 24 - 12 = 24$$

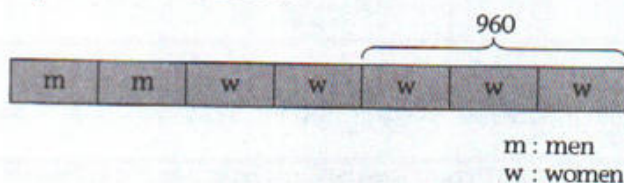
She used 24 eggs for baking cookies.

Answer: 24 eggs

Solution to Question

15

Step 1 : Draw a model



Step 2 : Find the total number of women in the country club

$$3 \text{ units} \rightarrow 960$$

$$1 \text{ unit} \rightarrow 960 \div 3 = 320$$

$$5 \text{ units} \rightarrow 5 \times 320 = 1600$$

Step 3 : Find the number of women who are above 50 years old

$$1600 - 1050 = 550$$

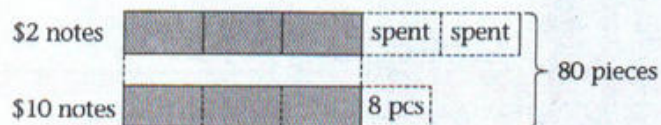
550 women are above 50 years old.

Answer: 550 women

Solution to Question

16

Step 1 : Draw a model



Step 2 : Find the number of pieces of notes left after spending 8 pieces of \$10 notes

$$80 - 8 = 72$$

Step 3 : Find the number of pieces of \$2 notes

$$8 \text{ units} \rightarrow 72$$

$$1 \text{ unit} \rightarrow 72 \div 8 = 9$$

$$5 \text{ units} \rightarrow 5 \times 9 = 45$$

Step 4 : Find the number of \$10 notes

$$3 \text{ units} \rightarrow 3 \times 9 = 27$$

$$27 + 8 = 35$$

Step 5 : Find the amount of money she had at first

$$45 \times \$2 = \$90$$

$$35 \times \$10 = \$350$$

$$\$90 + \$350 = \$440$$

Stephanie had \$440 at first.

Answer: \$440

Solution to Question

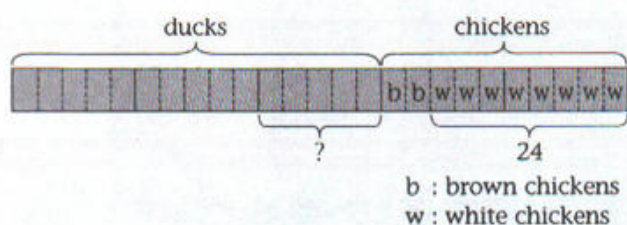
17

Step 1 : Draw a model

$$\frac{2}{5} = \frac{10}{25}$$

$$\frac{1}{5} = \frac{2}{10}$$

*Cut 1 big unit into 5 smaller units



Step 2 : Find how many more ducks than chickens there are

chickens $\rightarrow$ 10 units

ducks $\rightarrow$ 15 units

$15 - 10 = 5$ units more

8 units $\rightarrow$ 24

1 unit $\rightarrow 24 \div 8 = 3$

5 units $\rightarrow 5 \times 3 = 15$

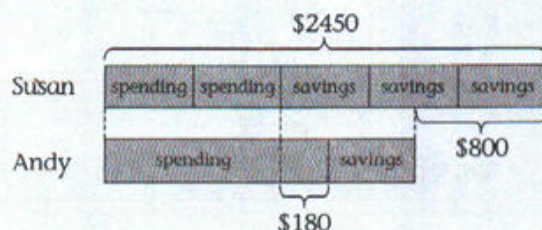
There are 15 more ducks than chickens on the farm.

Answer: 15 more ducks

Solution to Question

18

Step 1 : Draw a model



Step 2 : Find the amount of money Susan saves in a month

5 units $\rightarrow$ \$2450

1 unit $\rightarrow \$2450 \div 5 = \$490$

3 units $\rightarrow 3 \times \$490 = \$1470$

Step 3 : Find the amount of money Andy saves in a month

$\$1470 - \$800 - \$180 = \$490$

Step 4 : Find how much more Susan can save than Andy in half a year

$\$1470 - \$490 = \$980$

$6 \times \$980 = \$5880$

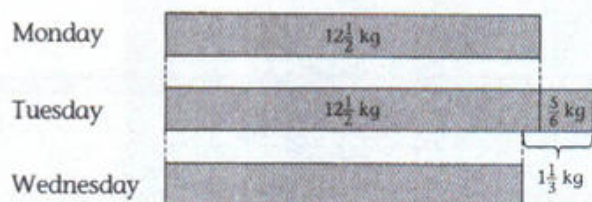
Susan can save \$5880 more than Andy in half a year.

Answer: \$5880

Solution to Question

19

Step 1 : Draw a model



Step 2 : Find the amount of flour sold on Tuesday

Remember to change to a common denominator before adding

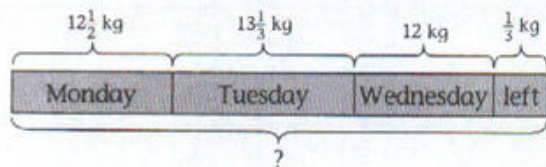
$$\begin{aligned} 12\frac{1}{2} \text{ kg} + \frac{5}{6} \text{ kg} &= \frac{25}{2} \text{ kg} + \frac{5}{6} \text{ kg} \\ &= \frac{75}{6} \text{ kg} + \frac{5}{6} \text{ kg} \\ &= \frac{80}{6} \text{ kg} \\ &= 13\frac{2}{3} \text{ kg} \\ &= 13\frac{1}{3} \text{ kg} \end{aligned}$$

$$\frac{2}{6} = \frac{1}{3}$$

Step 3 : Find the amount of flour sold on Wednesday

$$13\frac{1}{3} \text{ kg} - 1\frac{1}{3} \text{ kg} = 12 \text{ kg}$$

Step 4 : Find the total amount of flour he had at first



$$\begin{aligned} 12\frac{1}{2} \text{ kg} + 13\frac{1}{3} \text{ kg} + 12 \text{ kg} + \frac{1}{3} \text{ kg} \\ = 12\frac{3}{6} \text{ kg} + 13\frac{2}{6} \text{ kg} + 12 \text{ kg} + \frac{2}{6} \text{ kg} \\ = 37\frac{7}{6} \text{ kg} \\ = 38\frac{1}{6} \text{ kg} \end{aligned}$$

$$\frac{7}{6} = 1\frac{1}{6}$$

He had $38\frac{1}{6}$ kg of flour at first.

Answer: $38\frac{1}{6}$ kg of flour

Solution to Question

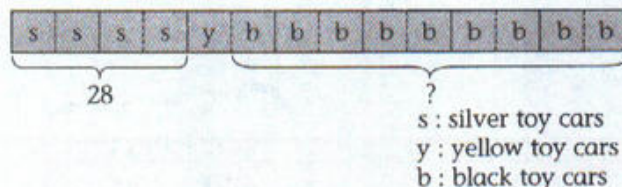
20

Step 1 : Draw a model

Remainder

$$\frac{7}{7} - \frac{2}{7} = \frac{5}{7} = \frac{10}{14}$$

$$\frac{2}{7} = \frac{4}{14}$$



Step 2 : Find the number of black toy cars in the box

$$\begin{aligned} 4 \text{ units} &\rightarrow 28 \\ 1 \text{ unit} &\rightarrow 28 \div 4 = 7 \\ 9 \text{ units} &\rightarrow 9 \times 7 = 63 \end{aligned}$$

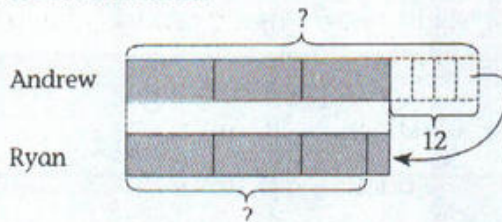
There are 63 black toy cars in the box.

Answer: 63 black toy cars

Solution to Question

21

Step 1 : Draw a model



Step 2 : Find the number of chocolates Andrew had at first

$$\begin{aligned} 1 \text{ unit} &\rightarrow 12 \\ 4 \text{ units} &\rightarrow 4 \times 12 = 48 \end{aligned}$$

Step 3 : Find the number of chocolates taken by Ryan

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

Step 4 : Find the number of chocolates Ryan had at first

$$\begin{aligned} 3 \text{ units} &\rightarrow 3 \times 12 = 36 \\ 36 - 3 &= 33 \end{aligned}$$

Andrew had 48 chocolates and Ryan had 33 chocolates at first.

Answers: Andrew: 48 chocolates
Ryan: 33 chocolates

Solution to Question

22

Step 1 : Draw a model



Step 2 : Find the number of pencils transferred to box B

$$8 \text{ units} \rightarrow 112$$

$$1 \text{ unit} \rightarrow 112 \div 8 = 14$$

Step 3 : Find how many more pencils there were in box A than box B at first

$$2 \text{ units} \rightarrow 2 \times 14 = 28$$

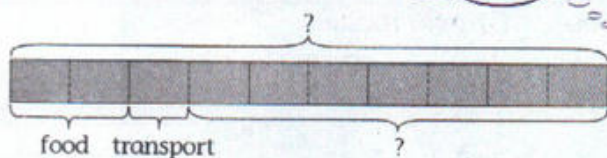
There were 28 more pencils in box A than in box B at first.

Answer: 28 pencils

Solution to Question

23

Step 1 : Draw a model



Step 2 : Find the amount of money she gave to her three brothers

$$\$86 + \$145 = \$231$$

$$3 \times \$231 = \$693$$

Step 3 : Find Andrea's salary

$$7 \text{ units} \rightarrow \$693$$

$$1 \text{ unit} \rightarrow \$693 \div 7 = \$99$$

$$10 \text{ units} \rightarrow 10 \times \$99 = \$990$$

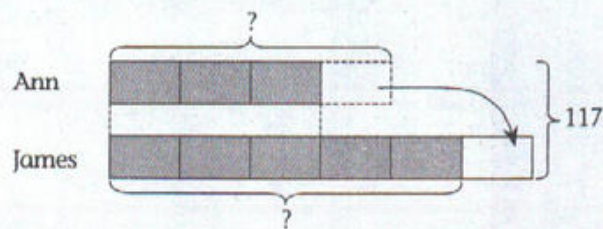
Andrea's salary was \$990.

Answer: \$990

Solution to Question

24

Step 1 : Draw a model



Step 2 : Find the number of stickers given by Ann

$$9 \text{ units} \rightarrow 117$$

$$1 \text{ unit} \rightarrow 117 \div 9 = 13$$

Step 3 : Find the number of stickers for each of them

$$\text{James} \rightarrow 5 \times 13 = 65$$

$$\text{Ann} \rightarrow 4 \times 13 = 52$$

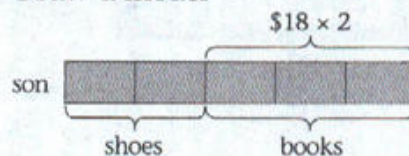
James had 65 stickers and Ann had 52 stickers in the beginning.

Answers: James: 65 stickers
Ann: 52 stickers

Solution to Question

25

Step 1 : Draw a model



Step 2 : Find the amount of money her son received

$$3 \text{ units} \rightarrow 2 \times \$18$$

$$= \$36$$

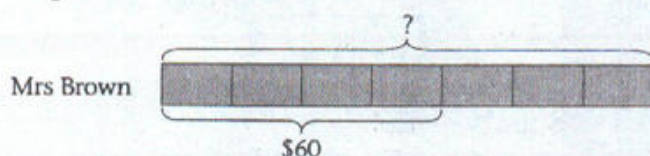
$$1 \text{ unit} \rightarrow \$36 \div 3$$

$$= \$12$$

$$5 \text{ units} \rightarrow 5 \times \$12$$

$$= \$60$$

Step 3 : Draw another model



Step 4 : Find the amount of money Mrs Brown had at first

$$4 \text{ units} \rightarrow \$60$$

$$1 \text{ unit} \rightarrow \$60 \div 4 = \$15$$

$$7 \text{ units} \rightarrow 7 \times \$15 = \$105$$

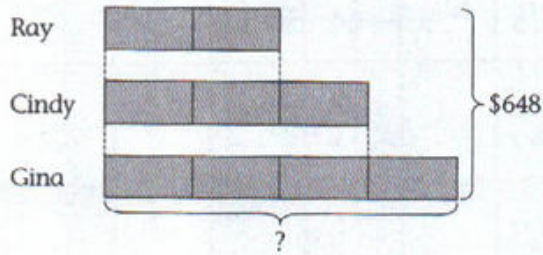
Mrs Brown had \$105 at first.

Answer: \$105

Solution to Question

26

Step 1 : Draw a model



Step 2 : Find the total number of charity tickets that three of them sold

$$\$648 \div \$2 = 324 \text{ tickets}$$

Step 3 : Find the number of charity tickets that Gina sold

$$9 \text{ units} \rightarrow 324$$

$$1 \text{ unit} \rightarrow 324 \div 9 = 36$$

$$4 \text{ units} \rightarrow 4 \times 36 = 144$$

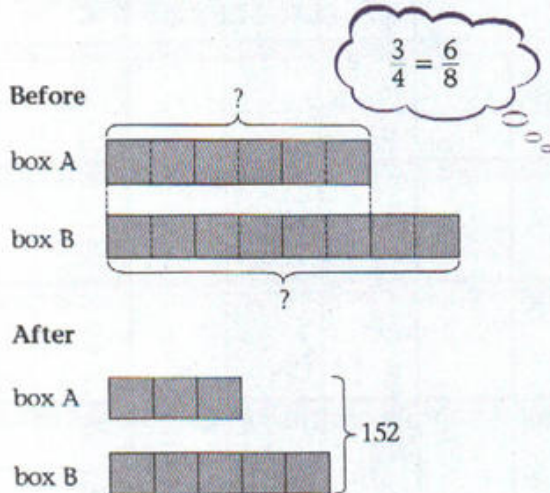
Gina sold 144 charity tickets.

Answer: 144 charity tickets

Solution to Question

27

Step 1 : Draw a model



Step 2 : Find the number of sweets for 1 unit

$$8 \text{ units} \rightarrow 152$$

$$1 \text{ unit} \rightarrow 152 \div 8 = 19$$

Step 3 : Find the number of sweets in each box

$$\text{Box A} \rightarrow 6 \times 19 = 114$$

$$\text{Box B} \rightarrow 8 \times 19 = 152$$

There were 114 sweets in box A and 152 sweets in box B at first.

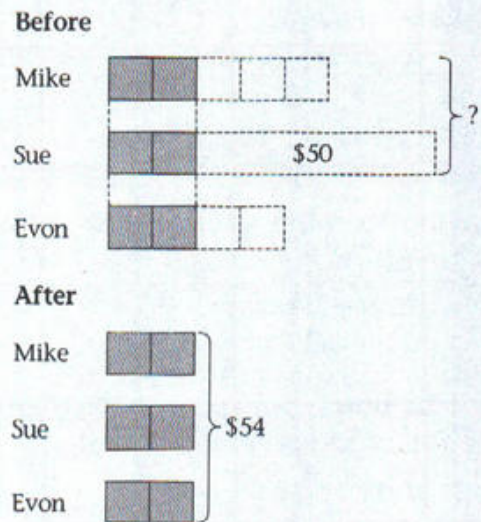
Answers: Box A: 114 sweets

Box B: 152 sweets

Solution to Question

28

Step 1 : Draw a model



Step 2 : Find the amount of money for 1 unit

$$6 \text{ units} \rightarrow \$54$$

$$1 \text{ unit} \rightarrow \$54 \div 6 = \$9$$

Step 3 : Find the total amount of money Mike and Sue had at first

$$7 \text{ units} \rightarrow 7 \times \$9 = \$63$$

$$\$63 + \$50 = \$113$$

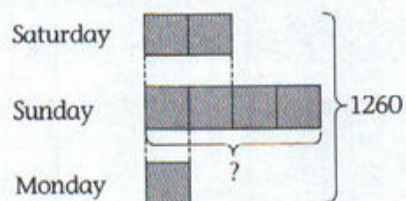
The total amount of money Mike and Sue had at first was \$113.

Answer: \$113

Solution to Question

29

Step 1 : Draw a model



Step 2 : Find the number of buns the baker sold on Monday

$$7 \text{ units} \rightarrow 1260$$

$$1 \text{ unit} \rightarrow 1260 \div 7 = 180$$

Step 3 : Find the number of buns the baker sold on Sunday

$$4 \text{ units} \rightarrow 4 \times 180 = 720$$

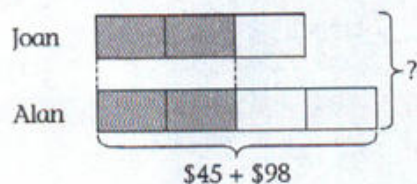
He sold 720 buns on Sunday.

Answer: 720 buns

Solution to Question

30

Step 1 : Draw a model



Step 2 : Find the total amount of money Alan had

$$\$45 + \$98 = \$143$$

Step 3 : Find the amount of money for 1 unit

$$\begin{aligned} 4 \text{ units} &\rightarrow \$143 \\ 1 \text{ unit} &\rightarrow \$143 \div 4 \\ &= \$35.75 \end{aligned}$$

Step 4 : Find the total amount of money Joan and Alan had

$$7 \text{ units} \rightarrow 7 \times \$35.75 = \$250.25$$

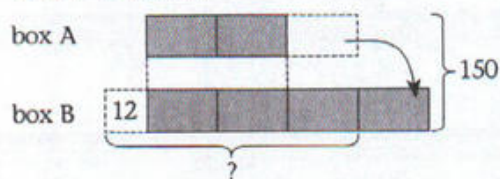
Joan and Alan had \$250.25 altogether.

Answer: \$250.25

Solution to Question

31

Step 1 : Draw a model



Step 2 : Find the number of marbles for 1 unit

$$\begin{aligned} 6 \text{ units} &\rightarrow 150 - 12 = 138 \\ 1 \text{ unit} &\rightarrow 138 \div 6 = 23 \end{aligned}$$

Step 3 : Find the number of marbles in box B in the beginning

$$\begin{aligned} 3 \text{ units} &\rightarrow 3 \times 23 = 69 \\ 69 + 12 &= 81 \end{aligned}$$

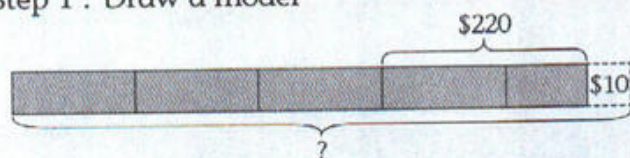
There were 81 marbles in box B in the beginning.

Answer: 81 marbles

Solution to Question

32

Step 1 : Draw a model



Step 2 : Find the amount of money for 1 unit

$$\begin{aligned} 2 \text{ units} &\rightarrow \$220 + \$10 = \$230 \\ 1 \text{ unit} &\rightarrow \$230 \div 2 = \$115 \end{aligned}$$

Step 3 : Find the normal price of the watch

$$5 \text{ units} \rightarrow 5 \times \$115 = \$575$$

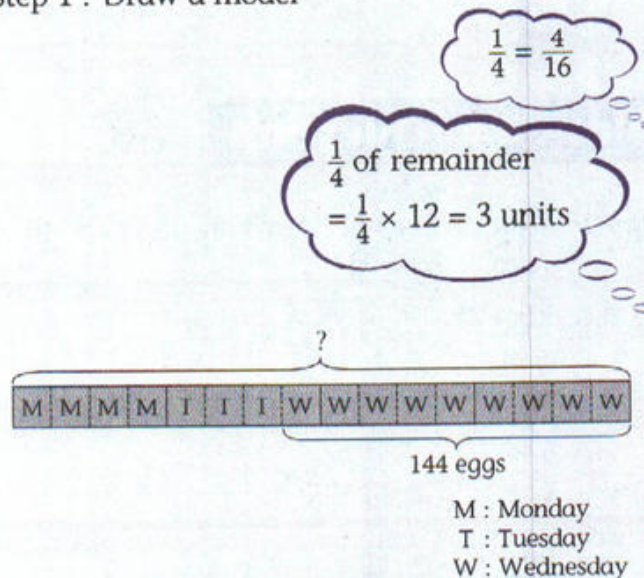
The normal price of the watch was \$575.

Answer: \$575

Solution to Question

33

Step 1 : Draw a model



Step 2 : Find the number of eggs for 1 unit

$$\begin{aligned} 9 \text{ units} &\rightarrow 144 \\ 1 \text{ unit} &\rightarrow 144 \div 9 \\ &= 16 \end{aligned}$$

Step 3 : Find the number of eggs he had in the beginning

$$16 \text{ units} \rightarrow 16 \times 16 = 256$$

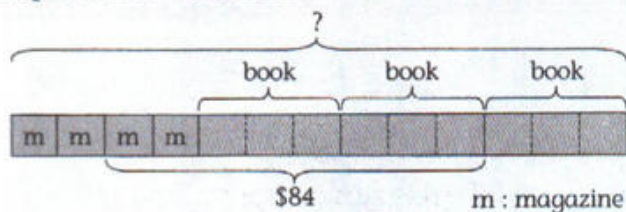
He had 256 eggs in the beginning.

Answer: 256 eggs

Solution to Question

34

Step 1 : Draw a model



Step 2 : Find the cost of one such magazine

$$8 \text{ units} \rightarrow \$84.00$$

$$1 \text{ unit} \rightarrow \$84.00 \div 8 \\ = \$10.50$$

Step 3 : Find the amount of money he had at first

$$13 \text{ units} \rightarrow 13 \times \$10.50 = \$136.50$$

Sam had \$136.50 at first.

Answer: \$136.50

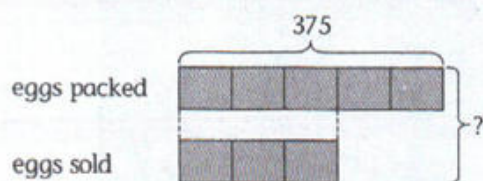
Solution to Question

35

Step 1 : Find the total number of eggs the farmer packed

$$15 \times 25 = 375$$

Step 2 : Draw a model



Step 3 : Find the number of eggs the farmer had at first

$$5 \text{ units} \rightarrow 375$$

$$1 \text{ unit} \rightarrow 375 \div 5 = 75$$

$$8 \text{ units} \rightarrow 8 \times 75 = 600$$

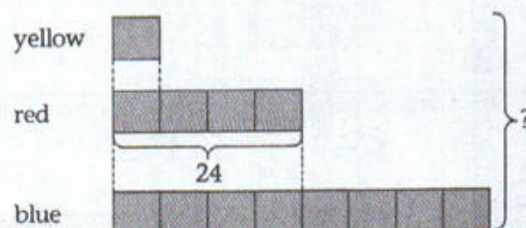
The farmer had 600 eggs at first.

Answer: 600 eggs

Solution to Question

36

Step 1 : Draw a model



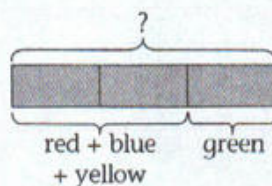
Step 2 : Find the total number of yellow, red and blue candles

$$4 \text{ units} \rightarrow 24$$

$$1 \text{ unit} \rightarrow 24 \div 4 \\ = 6$$

$$13 \text{ units} \rightarrow 13 \times 6 \\ = 78$$

Step 3 : Find the total number of candles in the box



$$2 \text{ units} \rightarrow 78$$

$$1 \text{ unit} \rightarrow 78 \div 2 \\ = 39$$

$$3 \text{ units} \rightarrow 3 \times 39 \\ = 117$$

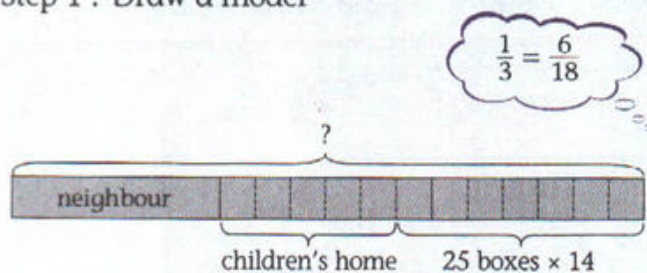
There were 117 candles in the box altogether.

Answer: 117 candles

Solution to Question

40

Step 1 : Draw a model



Step 2 : Find the number of pies that she packed into boxes

$$25 \times 14 = 350$$

Step 3 : Find $\frac{1}{3}$ of Mrs Crawford's pies

$$7 \text{ units} \rightarrow 350$$

$$1 \text{ unit} \rightarrow 350 \div 7 = 50$$

$$6 \text{ units} \rightarrow 6 \times 50 = 300$$

Step 4 : Find the total number of pies Mrs Crawford baked

$$3 \times 300 = 900$$

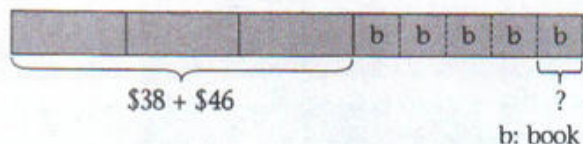
Mrs Crawford baked 900 pies altogether.

Answer: 900 pies

Solution to Question

41

Step 1 : Draw a model



Step 2 : Find the amount of money Sandy spent on the bear and toy train

$$\$38 + \$46 = \$84$$

Step 3 : Find the amount of money she had left

$$3 \text{ units} \rightarrow \$84$$

$$1 \text{ unit} \rightarrow \$84 \div 3$$

$$= \$28$$

$$2 \text{ units} \rightarrow 2 \times \$28$$

$$= \$56$$

Step 4 : Find the cost of each book

$$\$56 \div 5 = \$11.20$$

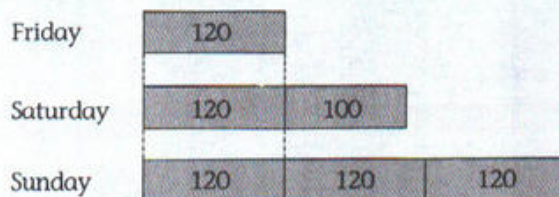
Each book cost \$11.20.

Answer: \$11.20

Solution to Question

42

Step 1 : Draw a model

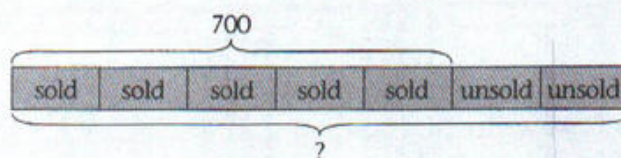


Step 2 : Find the total number of oranges he sold

$$5 \times 120 = 600$$

$$600 + 100 = 700$$

Step 3 : Draw another model



Step 4 : Find the number of oranges he had at first

$$5 \text{ units} \rightarrow 700$$

$$1 \text{ unit} \rightarrow 700 \div 5 = 140$$

$$7 \text{ units} \rightarrow 7 \times 140 = 980$$

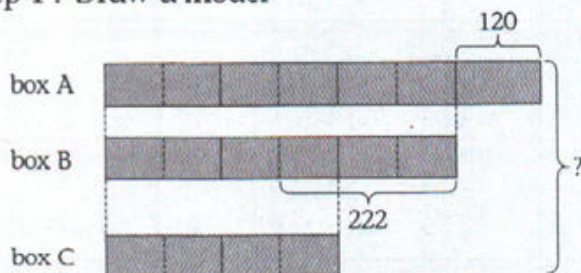
He had 980 oranges at first.

Answer: 980 oranges

Solution to Question

43

Step 1 : Draw a model



Step 2 : Find the number of eggs for 1 unit

$$3 \text{ units} \rightarrow 222$$

$$1 \text{ unit} \rightarrow 222 \div 3 = 74$$

Step 3 : Find the total number of eggs

$$16 \text{ units} \rightarrow 16 \times 74 = 1184$$

$$1184 + 120 = 1304$$

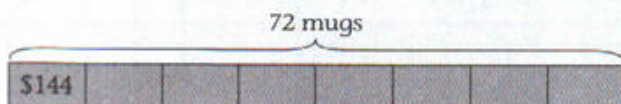
There were 1304 eggs altogether.

Answer: 1304 eggs

Solution to Question

44

Step 1 : Draw a model



Step 2 : Find the number of mugs Alfred sold

$$8 \text{ units} \rightarrow 72$$

$$1 \text{ unit} \rightarrow 72 \div 8 = 9$$

Step 3 : Find the cost of 1 mug

$$\$144 \div 9 = \$16$$

Step 4 : Find the amount of money he would get if he had sold all the mugs

$$72 \times \$16 = \$1152$$

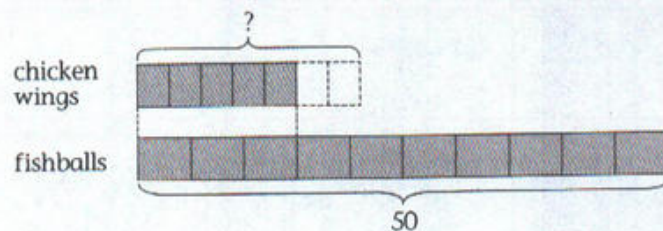
He would get \$1152 if he had sold all the mugs.

Answer: \$1152

Solution to Question

45

Step 1 : Draw a model



Step 2 : Find the number of chicken wings left in the pack

$$10 \text{ big units} \rightarrow 50$$

$$1 \text{ big unit} \rightarrow 50 \div 10 = 5$$

$$3 \text{ big units} \rightarrow 3 \times 5 = 15$$

Step 3 : Find the number of chicken wings in the pack at first

$$3 \text{ big units} = 5 \text{ small units}$$

$$5 \text{ small units} \rightarrow 15$$

$$1 \text{ small unit} \rightarrow 15 \div 5 = 3$$

$$7 \text{ small units} \rightarrow 7 \times 3 = 21$$

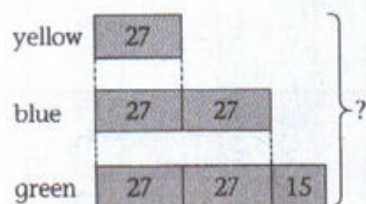
There were 21 chicken wings in the pack at first.

Answer: 21 chicken wings

Solution to Question

46

Step 1 : Draw a model

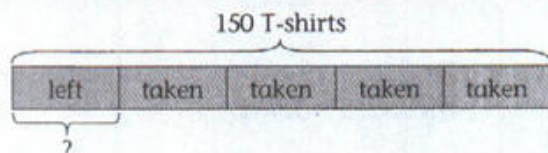


Step 2 : Find the total number of T-shirts

$$5 \times 27 = 135$$

$$135 + 15 = 150$$

Step 3 : Draw another model



Step 4 : Find the number of T-shirts left in the box

$$150 \div 5 = 30$$

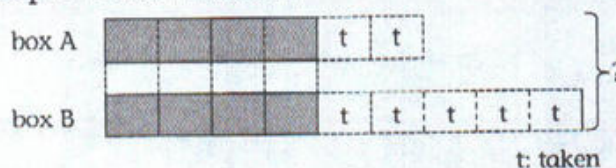
30 T-shirts were left in the box.

Answer: 30 T-shirts

Solution to Question

47

Step 1 : Draw a model



Step 2 : Find the number of pears for 1 unit

$$7 \text{ units} \rightarrow 84$$

$$1 \text{ unit} \rightarrow 84 \div 7 = 12$$

Step 3 : Find the number of pears in both boxes

$$15 \text{ units} \rightarrow 15 \times 12 = 180$$

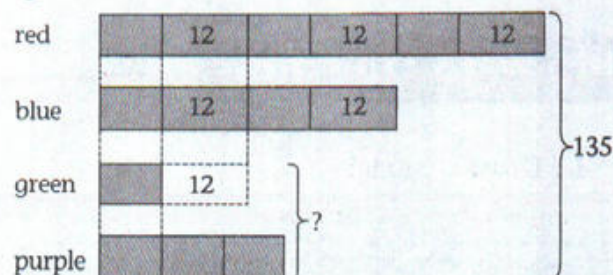
There were 180 pears in both boxes at first.

Answer: 180 pears

Solution to Question

48

Step 1 : Draw a model



Step 2 : Find 1 unit of the purple balloons

$$12 \times 6 = 72$$

$$135 - 72 = 63$$

$$9 \text{ units} \rightarrow 63$$

$$1 \text{ unit} \rightarrow 63 \div 9 = 7$$

Step 3 : Find the total number of purple and green balloons

$$4 \text{ units} \rightarrow 4 \times 7 = 28$$

$$28 + 12 = 40$$

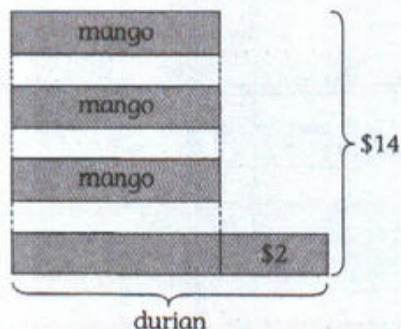
The total number of purple and green balloons Agnes had at first was 40.

Answer: 40 purple and green balloons

Solution to Question

49

Step 1 : Draw a model



Step 2 : Find the cost of 1 mango

$$\$14 - \$2 = \$12$$

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

Step 3 : Find the cost of 1 durian

$$\$3 + \$2 = \$5$$

Step 4 : Find the cost of 5 mangoes and 4 durians

$$5 \text{ mangoes} \rightarrow 5 \times \$3 = \$15$$

$$4 \text{ durians} \rightarrow 4 \times \$5 = \$20$$

$$\$15 + \$20 = \$35$$

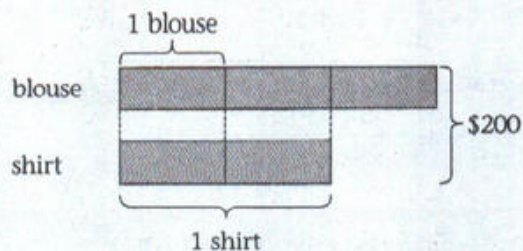
The total cost of 5 mangoes and 4 durians was \$35.

Answer: \$35

Solution to Question

50

Step 1 : Draw a model

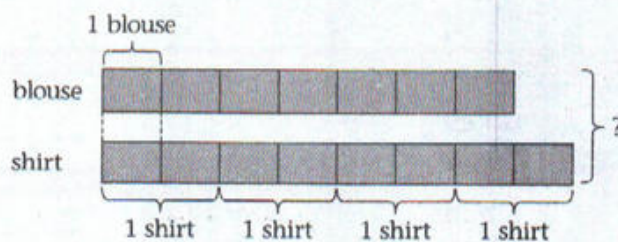


Step 2 : Find the cost of 1 blouse

$$5 \text{ units} \rightarrow \$200$$

$$1 \text{ unit} \rightarrow \$200 \div 5 = \$40$$

Step 3 : Draw another model



Step 4 : Find the total cost of 7 blouses and 4 shirts

$$7 \text{ blouses} + 4 \text{ shirts} = 15 \text{ units}$$

$$\begin{aligned} 15 \text{ units} &\rightarrow 15 \times \$40 \\ &= 3 \times 5 \times \$40 \\ &= 3 \times \$200 \\ &= \$600 \end{aligned}$$

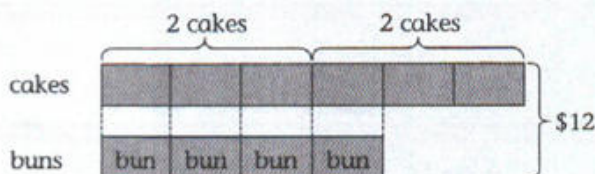
The cost of 7 blouses and 4 shirts is \$600.

Answer: \$600

Solution to Question

51

Step 1 : Draw a model



Step 2 : Find the cost of each bun

$$10 \text{ units} \rightarrow \$12$$

$$1 \text{ unit} \rightarrow \$12 \div 10 = \$1.20$$

Step 3 : Find the cost of each cake

$$3 \times \$1.20 = \$3.60$$

$$\$3.60 \div 2 = \$1.80$$

Step 4 : Find the total cost of 6 buns and 9 cakes

$$6 \text{ buns} \rightarrow 6 \times \$1.20 = \$7.20$$

$$9 \text{ cakes} \rightarrow 9 \times \$1.80 = \$16.20$$

$$\$7.20 + \$16.20 = \$23.40$$

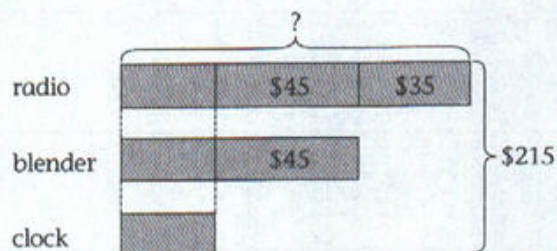
The total cost of 6 buns and 9 cakes was \$23.40.

Answer: \$23.40

Solution to Question

52

Step 1 : Draw a model



Step 2 : Find the value of 3 units

$$\$45 + \$35 + \$45 = \$125$$

$$\$215 - \$125 = \$90$$

Step 3 : Find the cost of the clock

$$3 \text{ units} \rightarrow \$90$$

$$1 \text{ unit} \rightarrow \$90 \div 3 = \$30$$

Step 4 : Find the cost of the radio

$$\$30 + \$45 + \$35 = \$110$$

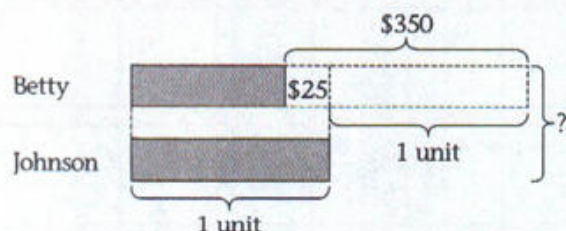
The cost of the radio is \$110.

Answer: \$110

Solution to Question

53

Step 1 : Draw a model



Step 2 : Find the amount of money Johnson had

$$\$350 - \$25 = \$325$$

Step 3 : Find the total amount of money they had at first

$$1 \text{ unit} \rightarrow \$325$$

$$3 \text{ units} \rightarrow 3 \times \$325 = \$975$$

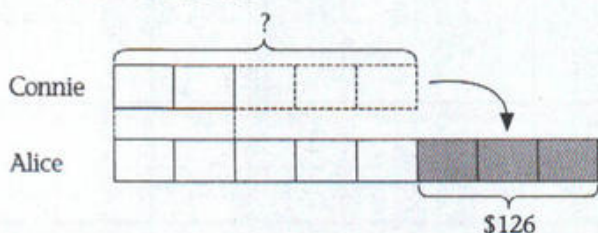
They had \$975 at first.

Answer: \$975

Solution to Question

54

Step 1 : Draw a model



Step 2 : Find the amount of money for 1 unit

$$3 \text{ units} \rightarrow \$126$$

$$1 \text{ unit} \rightarrow \$126 \div 3 = \$42$$

Step 3 : Find the amount of money Connie had at first

$$5 \text{ units} \rightarrow 5 \times \$42 = \$210$$

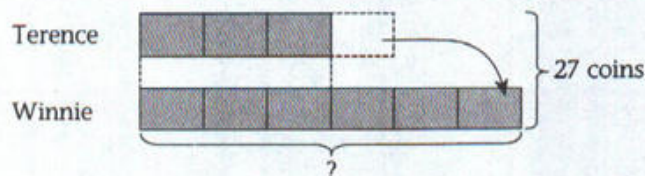
Connie had \$210 at first.

Answer: \$210

Solution to Question

55

Step 1 : Draw a model



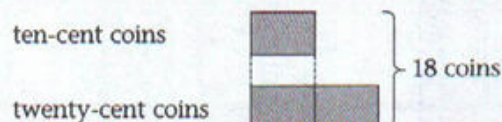
Step 2 : Find the number of coins Winnie had

$$9 \text{ units} \rightarrow 27$$

$$1 \text{ unit} \rightarrow 27 \div 9 = 3$$

$$6 \text{ units} \rightarrow 6 \times 3 = 18$$

Step 3 : Draw another model



Step 4 : Find the number of ten-cent and twenty-cent coins Winnie had

$$\text{ten-cent coins} \rightarrow 18 \div 3 = 6$$

$$\text{twenty-cent coins} \rightarrow 2 \times 6 = 12$$

Step 5 : Find the amount of money Winnie had in the end

$$100\text{¢} = \$1$$

$$6 \times 10\text{¢} = 60\text{¢}$$

$$12 \times 20\text{¢} = 240\text{¢}$$

$$60\text{¢} + 240\text{¢} = 300\text{¢} = \$3$$

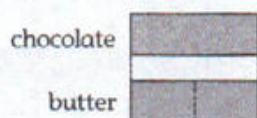
She had \$3 in the end.

Answer: \$3

Solution to Question

56

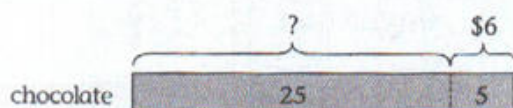
Step 1 : Draw a model to compare the prices of chocolate and butter cookies



20 butter cookies cost as much as 10 chocolate cookies.

Therefore, 20 butter cookies and 20 chocolate cookies cost as much as 30 chocolate cookies.

Step 2 : Draw a model to find the amount of money Hazel had at first



5 chocolate cookies $\rightarrow$ \$6

1 chocolate cookie $\rightarrow 600\text{¢} \div 5$
 $= 120\text{¢}$

25 chocolate cookies $\rightarrow 25 \times 120\text{¢}$
 $= 3000\text{¢}$
 $= \$30$

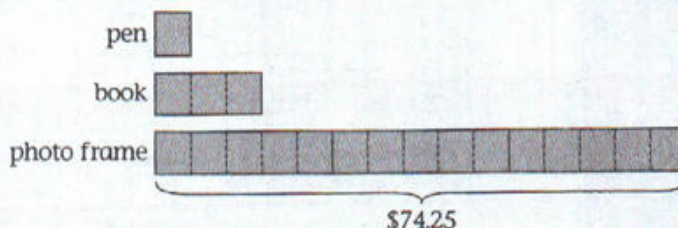
Hazel had \$30 at first.

Answer: \$30

Solution to Question

57

Step 1 : Draw a model



Step 2 : Find the cost of 1 unit

15 units $\rightarrow \$74.25$

1 unit $\rightarrow \$74.25 \div 15 = \$4.95$

Step 3 : Find the cost of a book, a pen and a photo frame

9 units $\rightarrow 9 \times \$4.95 = \$44.55$

The total cost of a book, a pen and a photo frame is \$44.55.

Answer: \$44.55

Solution to Question

58

Step 1 : Find the amount of money he would receive if he sold 1 T-shirt, 10 T-shirts and 100 T-shirts respectively

1 T-shirt	\$12
10 T-shirts	$10 \times \$12 + \$5$ $= \$120 + \$5$ $= \$125$
100 T-shirts	$(100 \times \$12) + (10 \times \$5) + \$50$ $= \$1200 + \$50 + \$50$ $= \$1300$

Step 2 : Find the number of T-shirts he would have to sell if he wanted to receive \$1372

$\$1372 - \$1300 = \$72$

$\$72 \div \$12 = 6$

100 T-shirts + 6 T-shirts = 106 T-shirts

Joel would have to sell 106 T-shirts if he wanted to receive \$1372 in total.

Answer: 106 T-shirts

Solution to Question

59

Step 1 : Draw a model

paint	\$5.40	\$5.40	\$5.40
coloured pencils			

Step 2 : Find the cost of 2 boxes of coloured pencils

$$3 \times \$5.40 = \$16.20$$

$$\$16.20 \div 2 = \$8.10$$

Step 3 : Find the amount of money Natalie had

$$7 \times \$5.40 = \$37.80$$

$$\$37.80 + \$8.10 = \$45.90$$

Step 4 : Find the amount of money Natalie would have left

$$5 \times \$5.40 = \$27.00$$

$$\$45.90 - \$27.00 = \$18.90$$

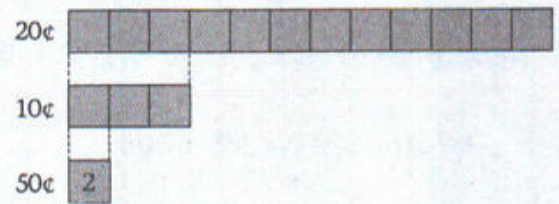
Natalie would have \$18.90 left if she only bought 5 boxes of paint.

Answer: \$18.90

Solution to Question

60

Step 1 : Draw a model



Step 2 : Find the number of coins in the different denominations

Number of ten-cent coins $\rightarrow$

$$3 \times 2 = 6$$

Number of twenty-cent coins $\rightarrow$

$$12 \times 2 = 24$$

Step 3 : Find the amount of money in the different denominations

Amount of money in fifty-cent coins $\rightarrow$

$$2 \times 50c = 100c$$

Amount of money in ten-cent coins $\rightarrow$

$$6 \times 10c = 60c$$

Amount of money in twenty-cent coins $\rightarrow$

$$24 \times 20c = 480c$$

Step 4 : Find the amount of money he had at first

$$100c + 480c + 60c = 640c$$

Step 5 : Find the amount of money he had left if he spent \$2.75 on a pair of socks

$$\begin{aligned} 640c - 275c &= 365c \\ &= \$3.65 \end{aligned}$$

\$1 = 100c

He would have \$3.65 left if he spent \$2.75 on a pair of socks.

Answer: \$3.65

Solution to Question

61

Step 1 : Find the number of flowers Fanny had

$$\$1 = 100\text{c}$$

$$\begin{aligned} \$7.20 \div 80\text{c} &= 720\text{c} \div 80\text{c} \\ &= 72 \div 8 \\ &= 9 \end{aligned}$$

Step 2 : Find the amount collected for selling $\frac{2}{3}$ of the flowers at 90c each

$$\frac{2}{3} \times \frac{3}{1} = 6 \text{ flowers}$$

$$6 \times 90\text{c} = 540\text{c}$$

Step 3 : Find the amount collected for selling the rest of the flowers at 50c each

$$9 - 6 = 3 \text{ flowers}$$

$$3 \times 50\text{c} = 150\text{c}$$

Step 4 : Find the total amount of money Michael collected

$$\begin{aligned} 540\text{c} + 150\text{c} &= 690\text{c} \\ &= \$6.90 \end{aligned}$$

Michael collected \$6.90.

Answer: \$6.90

Solution to Question

62

Step 1 : Draw a model



Step 2 : Find the cost of 3 pens or 5 pencils

$$5 \text{ units} \rightarrow \$45$$

$$1 \text{ unit} \rightarrow \$45 \div 5 = \$9$$

$$2 \text{ units} \rightarrow 2 \times \$9 = \$18$$

Step 3 : Find the cost of 1 pencil and 1 pen

$$\text{pencil} : \$18 \div 5 = \$3.60$$

$$\text{pen} : \$18 \div 3 = \$6$$

$$\$3.60 + \$6 = \$9.60$$

The total cost of a pencil and a pen was \$9.60.

Answer: \$9.60

Solution to Question

63

Step 1 : Find the number of hours Ron worked for 10 weekdays

$$10 \text{ days} \times 8 \text{ hours} = 80 \text{ hours}$$

Step 2 : Find the number of hours Ron had worked for 4 days over 2 weekends

weekend = Sat + Sun

$$4 \text{ days} \times 5 \text{ hours} = 20 \text{ hours}$$

Step 3 : Find the amount of money Ron earned in 10 weekdays

$$80 \text{ hours} \times \$12 = \$960$$

Step 4 : Find the amount of money Ron earned in 4 days over 2 weekends

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

$$20 \text{ hours} \times \$24 = \$480$$

Step 5 : Find the amount of money Ron will earn in 2 weeks

$$\$960 + \$480 = \$1440$$

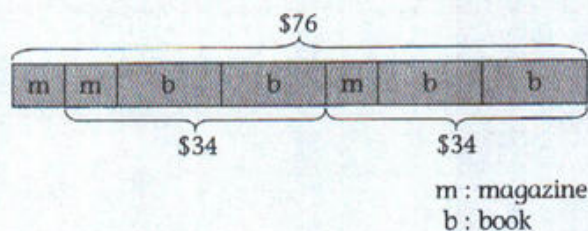
He will earn \$1440 in 2 weeks.

Answer: \$1440

Solution to Question

64

Step 1 : Draw a model



Step 2 : Find the cost of 1 magazine

$$\$34 \times 2 = \$68$$

$$\$76 - \$68 = \$8$$

Step 3 : Find the cost of 1 book

$$\$34 - \$8 = \$26$$

$$\$26 \div 2 = \$13$$

Step 4 : Find the cost of 13 magazines and 9 books

$$13 \text{ magazines} \rightarrow 13 \times \$8 = \$104$$

$$9 \text{ books} \rightarrow 9 \times \$13 = \$117$$

$$\text{Total} \rightarrow \$104 + \$117 = \$221$$

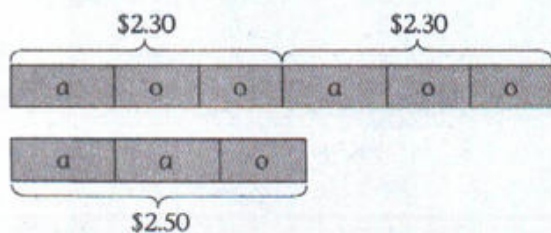
She spends \$221.

Answer: \$221

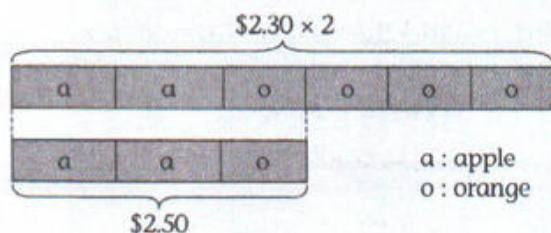
Solution to Question

65

Step 1 : Draw a model



Rearrange the model



Step 2 : Find the cost of 1 orange

$$\$2.30 \times 2 = \$4.60$$

$$\$4.60 - \$2.50 = \$2.10$$

$$\$2.10 \div 3 = \$0.70$$

Step 3 : Find the cost of 1 apple

$$\$2.50 - \$0.70 = \$1.80$$

$$\$1.80 \div 2 = \$0.90$$

Step 4 : Find the cost of 4 apples and 6 oranges

$$4 \times \$0.90 = \$3.60$$

$$6 \times \$0.70 = \$4.20$$

$$\$3.60 + \$4.20 = \$7.80$$

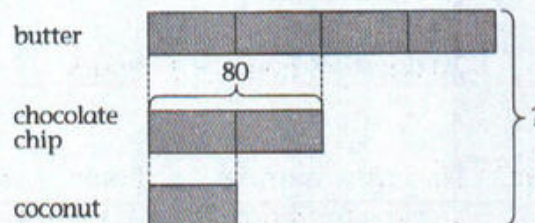
The cost of 4 apples and 6 oranges is \$7.80.

Answer: \$7.80

Solution to Question

66

Step 1 : Draw a model



Step 2 : Find the total number of cookies

$$1 \text{ unit} \rightarrow 80 \div 2 = 40$$

$$7 \text{ units} \rightarrow 7 \times 40 = 280$$

Step 3 : Find the number of boxes that she used to put the cookies in

$$280 \div 4 = 70$$

Step 4 : Find the total amount of money she collected

$$\begin{aligned} 70 \times \$4.50 &= 7 \times 10 \times \$4.50 \\ &= 7 \times \$45 \\ &= \$315 \end{aligned}$$

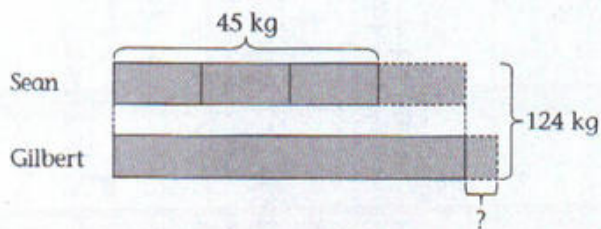
Mrs Bellamont would collect \$315 from the sale of all the cookies.

Answer: \$315

Solution to Question

67

Step 1 : Draw a model



Step 2 : Find the mass of Sean before he lost $\frac{1}{4}$ of his mass

$$3 \text{ units} \rightarrow 45 \text{ kg}$$

$$1 \text{ unit} \rightarrow 45 \text{ kg} \div 3 = 15 \text{ kg}$$

$$4 \text{ units} \rightarrow 4 \times 15 \text{ kg} = 60 \text{ kg}$$

Step 3 : Find the mass of Gilbert

$$124 \text{ kg} - 60 \text{ kg} = 64 \text{ kg}$$

Step 4 : Find the difference in mass between Gilbert and Sean

$$64 \text{ kg} - 60 \text{ kg} = 4 \text{ kg}$$

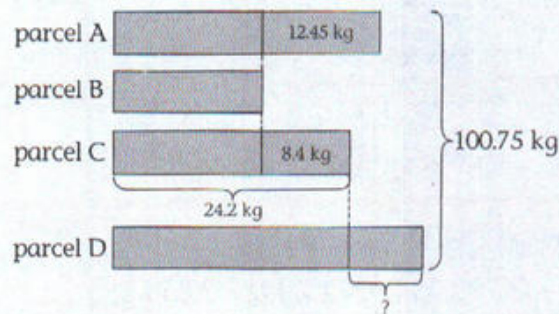
Gilbert was 4 kg heavier.

Answer: 4 kg

Solution to Question

68

Step 1 : Draw a model



Step 2 : Find the mass of parcel B

$$24.2 \text{ kg} - 8.4 \text{ kg} = 15.8 \text{ kg}$$

Step 3 : Find the mass of parcel A

$$15.8 \text{ kg} + 12.45 \text{ kg} = 28.25 \text{ kg}$$

Step 4 : Find the total mass of parcels A, B and C

$$28.25 \text{ kg} + 15.8 \text{ kg} + 24.2 \text{ kg} = 68.25 \text{ kg}$$

Step 5 : Find the mass of parcel D

$$100.75 \text{ kg} - 68.25 \text{ kg} = 32.5 \text{ kg}$$

Step 6 : Find how much heavier parcel D is than parcel C

$$32.5 \text{ kg} - 24.2 \text{ kg} = 8.3 \text{ kg}$$

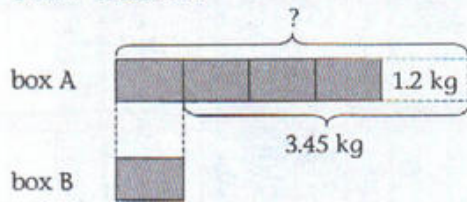
Parcel D is 8.3 kg heavier than parcel C.

Answer: 8.3 kg

Solution to Question

69

Step 1 : Draw a model



Step 2 : Find the value of 1 unit

$$3.45 \text{ kg} - 1.2 \text{ kg} = 2.25 \text{ kg}$$

$$3 \text{ units} \rightarrow 2.25 \text{ kg}$$

$$1 \text{ unit} \rightarrow 2.25 \text{ kg} \div 3 = 0.75 \text{ kg}$$

Step 3 : Find the mass of box A

$$4 \times 0.75 \text{ kg} = 3 \text{ kg}$$

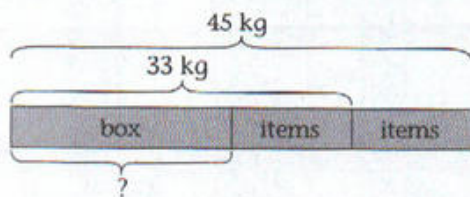
$$3 \text{ kg} + 1.2 \text{ kg} = 4.2 \text{ kg}$$

The mass of box A was 4.2 kg in the beginning.

Answer: 4.2 kg

Solution to Question

70



Step 2 : Find the mass of the remaining items

$$45 \text{ kg} - 33 \text{ kg} = 12 \text{ kg}$$

Step 3 : Find the mass of the empty box

$$33 \text{ kg} - 12 \text{ kg} = 21 \text{ kg}$$

Step 4 : Find the mass of 6 empty boxes

$$6 \times 21 \text{ kg} = 126 \text{ kg}$$

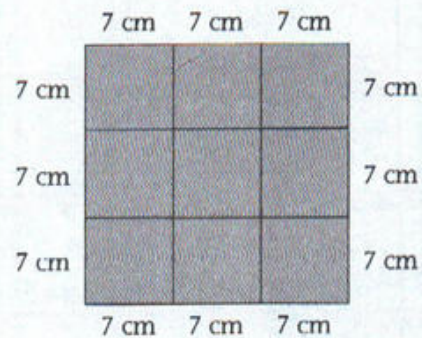
The mass of 6 empty boxes is 126 kg.

Answer: 126 kg

Solution to Question

71

Step 1 : Draw the diagram of the large square



Step 2 : Find the length of each side of the large square

$$3 \times 7 \text{ cm} = 21 \text{ cm}$$

Step 3 : Find the area of the large square

$$\text{Area} = \text{Length} \times \text{Breadth}$$

$$21 \text{ cm} \times 21 \text{ cm} = 441 \text{ cm}^2$$

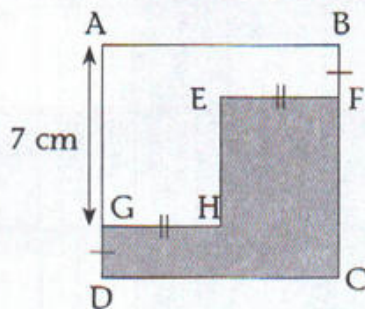
The area of the large square is 441 cm².

Answers: 441 cm²

Solution to Question

72

Step 1 : Label the different lengths of the square



Step 2 : Find the length of each side

$$9 \text{ cm} \times 9 \text{ cm} = 81 \text{ cm}^2$$

Length of AB = 9 cm

Length of BF = Length of GD
 $= 9 \text{ cm} - 7 \text{ cm}$
 $= 2 \text{ cm}$

Length of EH = $7 \text{ cm} - 2 \text{ cm} = 5 \text{ cm}$

GH + EF = 9 cm

Step 3 : Find the perimeter of the unshaded portion

Perimeter of the unshaded portion
 $= AB + BF + (GH + EF) + EH + GA$
 $= 9 \text{ cm} + 2 \text{ cm} + 9 \text{ cm} + 5 \text{ cm} + 7 \text{ cm}$
 $= 32 \text{ cm}$

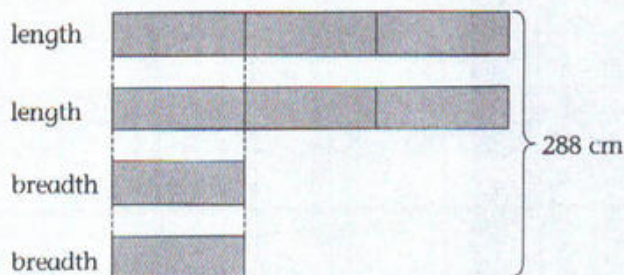
The perimeter of the unshaded portion is 32 cm.

Answer: 32 cm

Solution to Question

73

Step 1 : Draw a model



Step 2 : Find the breadth of the rectangle

$$288 \text{ cm} \div 8 = 36 \text{ cm}$$

Step 3 : Find the length of the rectangle

$$3 \times 36 \text{ cm} = 108 \text{ cm}$$

Step 4 : Find the area of the rectangle

$$36 \text{ cm} \times 108 \text{ cm} = 3888 \text{ cm}^2$$

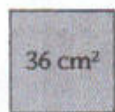
The area of the rectangle is 3888 cm².

Answer: 3888 cm²

Solution to Question

74

Step 1 : Draw the diagrams of the square and rectangle



$\frac{2}{3}$ of the wire



$\frac{1}{3}$ of the wire

Step 2 : Find the length of each side of the square

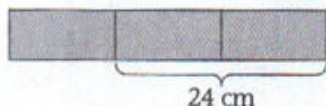
$$6 \text{ cm} \times 6 \text{ cm} = 36 \text{ cm}^2$$

Step 3 : Find the length of the wire used to form a square

Length of wire used to make the square = Perimeter of the square

$$4 \times 6 \text{ cm} = 24 \text{ cm}$$

Step 4 : Find the total length of the wire



$$2 \text{ units} \rightarrow 24 \text{ cm}$$

$$1 \text{ unit} \rightarrow 24 \text{ cm} \div 2 = 12 \text{ cm}$$

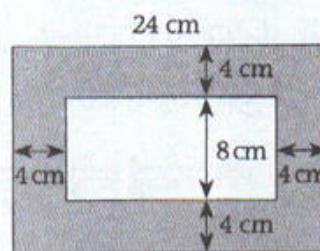
$$3 \text{ units} \rightarrow 3 \times 12 \text{ cm} = 36 \text{ cm}$$

The wire was 36 cm long at first.

Answer: 36 cm

Solution to Question

75



Step 1 : Find the breadth of the paper

$$8 \text{ cm} + 4 \text{ cm} + 4 \text{ cm} = 16 \text{ cm}$$

Step 2 : Find the area of the paper

$$24 \text{ cm} \times 16 \text{ cm} = 384 \text{ cm}^2$$

Step 3 : Find the length of the picture

$$24 \text{ cm} - 4 \text{ cm} - 4 \text{ cm} = 16 \text{ cm}$$

Step 4 : Find the area of the picture

$$16 \text{ cm} \times 8 \text{ cm} = 128 \text{ cm}^2$$

Step 5 : Find the area of the border

$$384 \text{ cm}^2 - 128 \text{ cm}^2 = 256 \text{ cm}^2$$

The area of the border is 256 cm².

Answer: 256 cm²

Solution to Question

76

Step 1 : Find the perimeter of the rectangle

$$15 \text{ cm} + 12 \text{ cm} = 27 \text{ cm}$$

$$2 \times 27 \text{ cm} = 54 \text{ cm}$$

Step 2 : Find the area of the rectangle

$$15 \text{ cm} \times 12 \text{ cm} = 180 \text{ cm}^2$$

Step 3 : Find the perimeter of the square

$$180 \text{ cm} \div 2 = 90 \text{ cm}$$

Step 4 : Find the length of the wire needed to make 3 squares and 2 rectangles

$$3 \text{ squares} \rightarrow 3 \times 90 \text{ cm} = 270 \text{ cm}$$

$$2 \text{ rectangles} \rightarrow 2 \times 54 \text{ cm} = 108 \text{ cm}$$

Step 5 : Find the length of the wire

$$270 \text{ cm} + 108 \text{ cm} + 20 \text{ cm} = 398 \text{ cm}$$

The length of the wire is 398 cm.

Answer: 398 cm

Solution to Question 77

Step 1 : Find the length of EH

$$EF = HG = 24 \text{ cm}$$

$$EH \text{ and } FG = 180 \text{ cm} - 24 \text{ cm} - 24 \text{ cm} = 132 \text{ cm}$$

$$EH = FG = 132 \text{ cm} \div 2 = 66 \text{ cm}$$

Step 2 : Find the length of rectangle ABCD

$$10 \text{ cm} + 66 \text{ cm} + 13 \text{ cm} = 89 \text{ cm}$$

Step 3 : Find the length of GZ

$$YH = 12 \text{ cm}$$

$$GZ = 12 \text{ cm} \div 2 = 6 \text{ cm}$$

Step 4 : Find the breadth of rectangle ABCD

$$12 \text{ cm} + 24 \text{ cm} + 6 \text{ cm} = 42 \text{ cm}$$

Step 5 : Find the area of rectangle ABCD

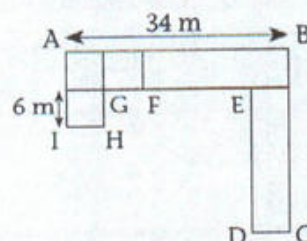
$$42 \text{ cm} \times 89 \text{ cm} = 3738 \text{ cm}^2$$

The area of rectangle ABCD is 3738 cm².

Answer: 3738 cm²

Solution to Question 78

Step 1 : Label the diagram



Step 2 : Find the length of each rectangle

$$34 \text{ m} - 6 \text{ m} - 6 \text{ m} = 22 \text{ m}$$

Step 3 : Find the lengths of all sides of the garden

$$AB = 34 \text{ m}$$

$$BC = 22 \text{ m} + 6 \text{ m} = 28 \text{ m}$$

$$CD = 6 \text{ m}$$

$$DE = 22 \text{ m}$$

$$EF = 22 \text{ m} - 6 \text{ m} = 16 \text{ m}$$

$$FG = 6 \text{ m}$$

$$GH = 6 \text{ m}$$

$$HI = 6 \text{ m}$$

$$IA = 6 \text{ m} + 6 \text{ m} = 12 \text{ m}$$

Step 4 : Find the perimeter of the garden

$$\text{Perimeter of the garden} =$$

$$34 \text{ m} + 28 \text{ m} + 6 \text{ m} + 22 \text{ m} + 16 \text{ m} + 6 \text{ m} + 6 \text{ m} + 6 \text{ m} + 12 \text{ m} = 136 \text{ m}$$

Step 5 : Find the cost of fencing the entire garden

$$2 \text{ m} \rightarrow \$23$$

$$1 \text{ m} \rightarrow \$23 \div 2 = \$11.50$$

$$136 \text{ m} \rightarrow 136 \times \$11.50 = \$1564$$

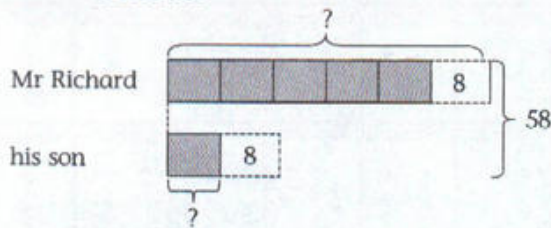
Mr Cox will have to pay \$1564 to fence the entire garden.

Answer: \$1564

Solution to Question

79

Step 1 : Draw a model



Step 2 : Find their present total ages

$$58 - 8 - 8 = 42$$

Step 3 : Find his son's present age

$$6 \text{ units} \rightarrow 42$$

$$1 \text{ unit} \rightarrow 42 \div 6 = 7$$

(a) His son's present age is 7 years old.

Step 4 : Find Mr Richard's age in 8 years' time

$$5 \text{ units} \rightarrow 5 \times 7 = 35$$

$$35 + 8 = 43$$

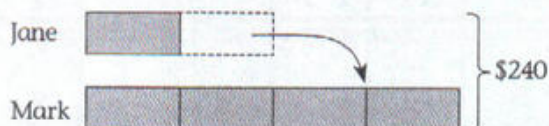
(b) Mr Richard will be 43 years old.

Answers: (a) 7 years old
(b) 43 years old

Solution to Question

80

Step 1 : Draw a model



Step 2 : Find the value of 1 unit

$$5 \text{ units} \rightarrow \$240$$

$$1 \text{ unit} \rightarrow \$240 \div 5 = \$48$$

Step 3 : Find the amount of money Jane had at first

$$2 \text{ units} \rightarrow 2 \times \$48 = \$96$$

(a) Jane had \$96 at first.

Step 4 : Find the amount of money Mark had at first

$$3 \text{ units} \rightarrow 3 \times \$48 = \$144$$

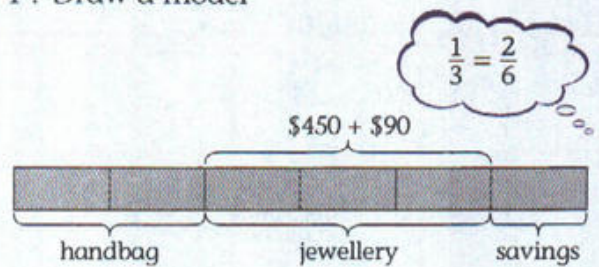
(b) Mark had \$144 at first.

Answers: (a) \$96
(b) \$144

Solution to Question

81

Step 1 : Draw a model



Step 2 : Find the amount of money she saved

$$\$450 + \$90 = \$540$$

$$3 \text{ units} \rightarrow \$540$$

$$1 \text{ unit} \rightarrow \$540 \div 3 = \$180$$

(a) She saved \$180.

Step 3 : Find the amount of money she had at first

$$6 \text{ units} \rightarrow 6 \times \$180 = \$1080$$

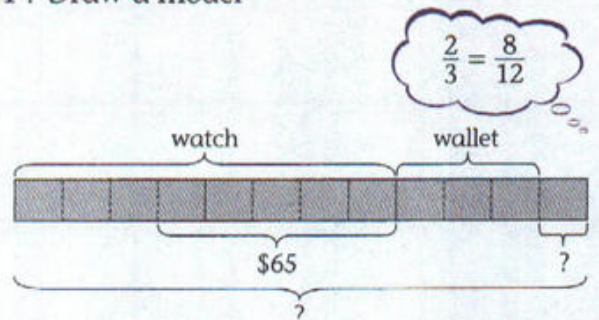
(b) She had \$1080 at first.

Answers: (a) \$180
(b) \$1080

Solution to Question

82

Step 1 : Draw a model



Step 2 : Find the amount of money Sean had left

$$5 \text{ units} \rightarrow \$65$$

$$1 \text{ unit} \rightarrow \$65 \div 5 = \$13$$

(a) Sean had \$13 left.

Step 3 : Find the amount of money Sean had at first

$$12 \text{ units} \rightarrow 12 \times \$13 = \$156$$

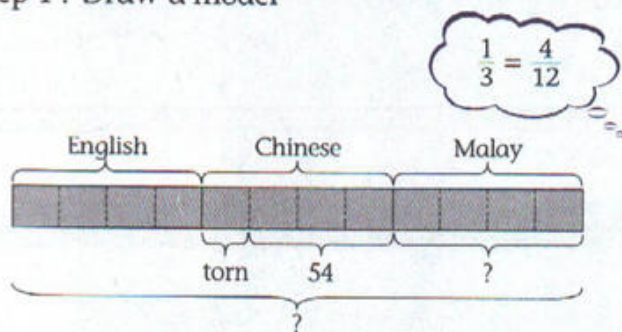
(b) Sean had \$156 at first.

Answers: (a) \$13
(b) \$156

Solution to Question

83

Step 1 : Draw a model



Step 2 : Find the number of Malay books

$$3 \text{ units} \rightarrow 54$$

$$1 \text{ unit} \rightarrow 54 \div 3 = 18$$

$$4 \text{ units} \rightarrow 54 + 18 = 72$$

(a) There are 72 Malay books.

Step 3 : Find the total number of books

$$3 \times 72 = 216$$

(b) There are 216 books altogether.

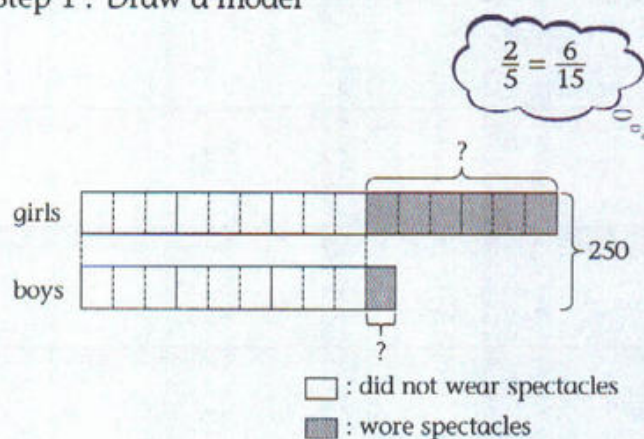
Answers: (a) 72 Malay books

(b) 216 books

Solution to Question

84

Step 1 : Draw a model



Step 2 : Find the number of boys who wore spectacles

$$25 \text{ units} \rightarrow 250$$

$$1 \text{ unit} \rightarrow 250 \div 25 = 10$$

(a) 10 boys wore spectacles.

Step 3 : Find the number of girls who wore spectacles

$$6 \text{ units} \rightarrow 6 \times 10 = 60$$

(b) 60 girls wore spectacles.

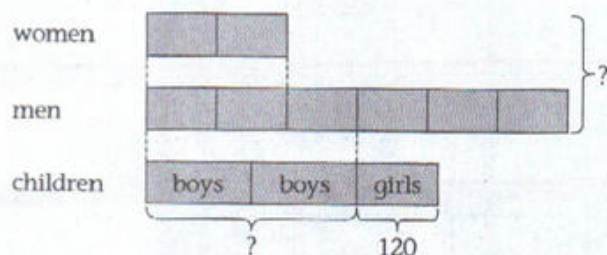
Answers: (a) 10 boys

(b) 60 girls

Solution to Question

85

Step 1 : Draw a model



Step 2 : Find the number of boys

$$2 \times 120 = 240$$

(a) There were 240 boys.

Step 3 : Find the number of adults

$$3 \text{ units} \rightarrow 240$$

$$1 \text{ unit} \rightarrow 240 \div 3 = 80$$

$$8 \text{ units} \rightarrow 8 \times 80 = 640$$

(b) There were 640 adults.

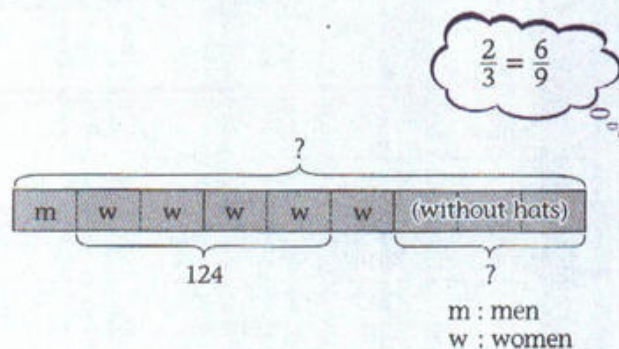
Answers: (a) 240 boys

(b) 640 adults

Solution to Question

86

Step 1 : Draw a model



Step 2 : Find the number of people who did not wear hats

$$4 \text{ units} \rightarrow 124$$

$$1 \text{ unit} \rightarrow 124 \div 4 = 31$$

$$3 \text{ units} \rightarrow 3 \times 31 = 93$$

(a) 93 people did not wear hats.

Step 3 : Find the total number of people at the fair

$$9 \text{ units} \rightarrow 9 \times 31 = 279$$

(b) There were 279 people at the fair.

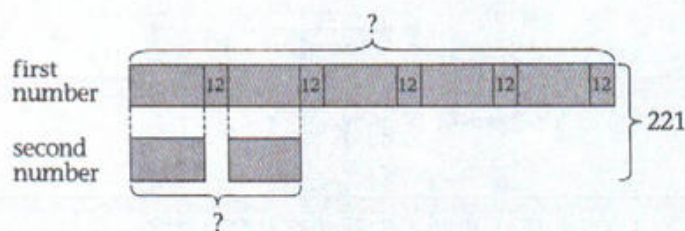
Answers: (a) 93 people

(b) 279 people

Solution to Question

87

Step 1 : Draw a model



Step 2 : Find the value of 1 unit

$$5 \times 12 = 60$$

$$221 - 60 = 161$$

$$7 \text{ units} \rightarrow 161$$

$$1 \text{ unit} \rightarrow 161 \div 7 = 23$$

Step 3 : Find the first number

$$23 + 12 = 35$$

$$5 \times 35 = 175$$

(a) The first number is 175.

Step 4 : Find the second number

$$2 \times 23 = 46$$

(b) The second number is 46.

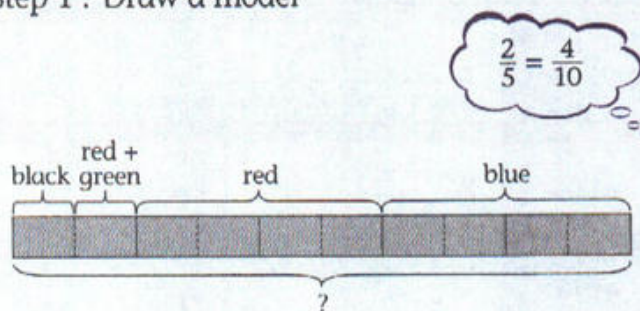
Answers: (a) 175

(b) 46

Solution to Question

88

Step 1 : Draw a model



Step 2 : Find the total number of red and blue pens

$$1 \text{ unit} \rightarrow 24 + 12 = 36$$

$$8 \text{ units} \rightarrow 8 \times 36 = 288$$

$$288 + 12 = 300$$

(a) Gracia had 300 red and blue pens.

Step 3 : Find the total number of pens Gracia had

$$10 \text{ units} \rightarrow 10 \times 36 = 360$$

(b) Gracia had 360 pens altogether.

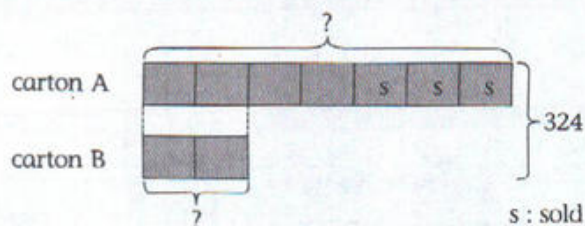
Answers: (a) 300 red and blue pens

(b) 360 pens

Solution to Question

89

Step 1 : Draw a model



Step 2 : Find the number of oranges in carton A at first

$$9 \text{ units} \rightarrow 324$$

$$1 \text{ unit} \rightarrow 324 \div 9 = 36$$

$$7 \text{ units} \rightarrow 7 \times 36 = 252$$

(a) There were 252 oranges in carton A at first.

Step 3 : Find the number of oranges in carton B at first

$$2 \text{ units} \rightarrow 2 \times 36 = 72$$

(b) There were 72 oranges in carton B at first.

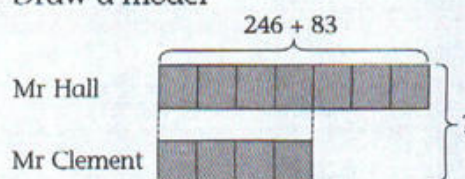
Answers: (a) 252 oranges

(b) 72 oranges

Solution to Question

90

Step 1 : Draw a model



Step 2 : Find the number of lemons that Mr Hall sold on both days

$$246 + 83 = 329$$

Step 3 : Find the number of lemons Mr Clement sold on both days

$$7 \text{ units} \rightarrow 329$$

$$1 \text{ unit} \rightarrow 329 \div 7 = 47$$

$$4 \text{ units} \rightarrow 4 \times 47 = 188$$

Step 4 : Find the number of lemons Mr Clement sold on Tuesday

$$\text{Monday} \rightarrow 246 \div 2 = 123$$

$$\text{Tuesday} \rightarrow 188 - 123 = 65$$

(a) Mr Clement sold 65 lemons on Tuesday.

Step 5 : Find the number of lemons both men sold altogether

$$329 + 188 = 517$$

(b) Both men sold 517 lemons altogether on both days.

Answers: (a) 65 lemons

(b) 517 lemons



Solution to Question

91

Step 1 : Find the fraction of money that each of them saved every day

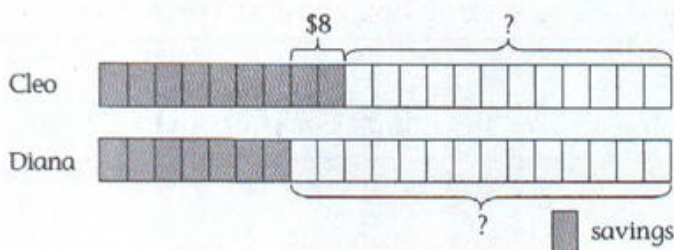
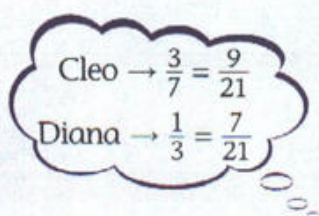
$$\text{Cleo} \rightarrow 1 - \frac{4}{7} = \frac{3}{7}$$

$$\text{Diana} \rightarrow 1 - \frac{2}{3} = \frac{1}{3}$$

Step 2 : Find how much more Cleo saved than Diana in 1 day

$$\$56 \div 7 = \$8$$

Step 3 : Draw a model



Step 4 : Find the amount of money each of them spent in a day

$$2 \text{ units} \rightarrow \$8$$

$$1 \text{ unit} \rightarrow \$8 \div 2 = \$4$$

$$12 \text{ units} \rightarrow 12 \times \$4 = \$48$$

(a) Cleo spent \$48 a day.

$$14 \text{ units} \rightarrow 14 \times \$4 = \$56$$

(b) Diana spent \$56 a day.

Answers: (a) \$48

(b) \$56

Solution to Question

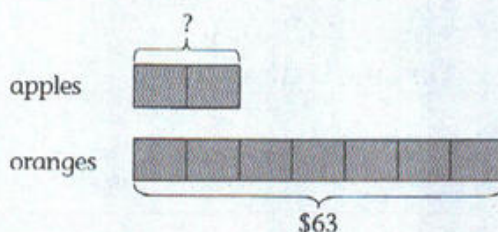
92

Step 1 : Find the cost of 90 oranges

$$90 \times 70\text{c} = 6300\text{c} = \$63$$

$$\$1 = 100\text{c}$$

Step 2 : Draw a model



Step 3 : Find the cost of a box of apples

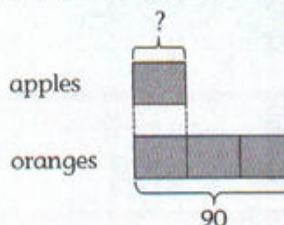
$$7 \text{ units} \rightarrow \$63$$

$$1 \text{ unit} \rightarrow \$63 \div 7 = \$9$$

$$2 \text{ units} \rightarrow 2 \times \$9 = \$18$$

(a) A box of apples costs \$18.

Step 4 : Draw another model



Step 5 : Find the number of apples in 1 box

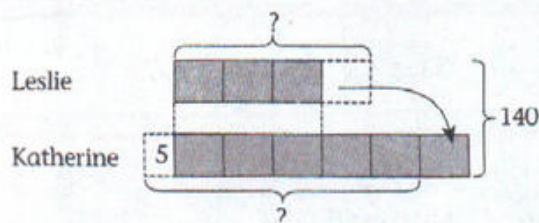
$$90 \div 3 = 30$$

(b) There are 30 apples in 1 box.

Answers: (a) \$18

(b) 30 apples

Step 1 : Draw a model



Step 2 : Find the value of 1 unit

$$140 - 5 = 135$$

$$9 \text{ units} \rightarrow 135$$

$$1 \text{ unit} \rightarrow 135 \div 9 = 15$$

Step 3 : Find the number of sweets Leslie had at first

$$4 \text{ units} \rightarrow 4 \times 15 = 60$$

(a) Leslie had 60 sweets at first.

Step 4 : Find the number of sweets Katherine had at first

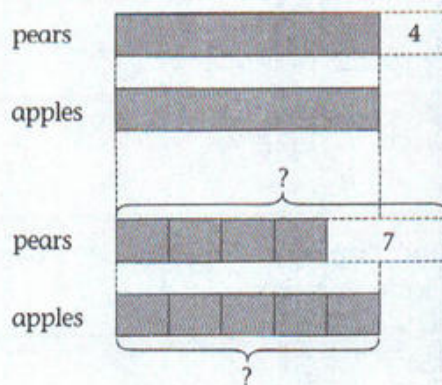
$$140 - 60 = 80$$

(b) Katherine had 80 sweets at first.

Answers: (a) 60 sweets

(b) 80 sweets

Step 1 : Draw a model



Step 2 : Find the number of apples in the box at first

$$7 - 4 = 3$$

$$1 \text{ unit} \rightarrow 3$$

$$5 \text{ units} \rightarrow 5 \times 3 = 15$$

(a) There were 15 apples in the box at first.

Step 3 : Find the number of pears in the box at first

$$4 \text{ units} \rightarrow 4 \times 3 = 12$$

$$12 + 7 = 19$$

(b) There were 19 pears in the box at first.

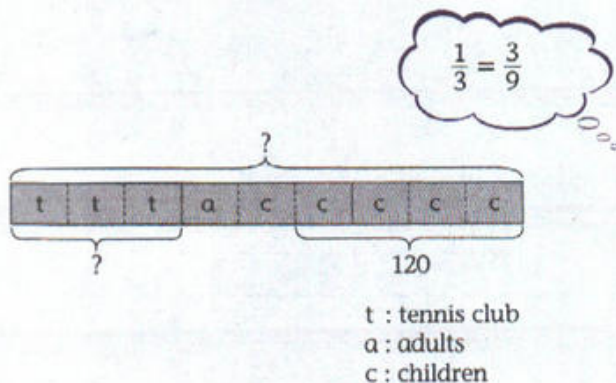
Answers: (a) 15 apples

(b) 19 pears

Solution to Question

95

Step 1 : Draw a model



Step 2 : Find the number of adults

$$4 \text{ units} \rightarrow 120$$

$$1 \text{ unit} \rightarrow 120 \div 4 = 30$$

Step 3 : Find the number of people belonging to the tennis club

$$3 \text{ units} \rightarrow 3 \times 30 = 90$$

(a) 90 people belonged to the tennis club.

Step 4 : Find the total number of spectators

$$9 \text{ units} \rightarrow 9 \times 30 = 270$$

(b) There were 270 spectators at the tennis match.

Answers: (a) 90 people
(b) 270 spectators

Solution to Question

96

Step 1 : Find the cost of each papaya

$$18 - 12 = 6$$

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

(a) Each papaya cost \$5.

Step 2 : Find the cost of three apples and three papayas

$$2 \text{ papayas} = 5 \text{ apples}$$

$$5 \text{ apples} \rightarrow 2 \times \$5 \\ = \$10$$

$$1 \text{ apple} \rightarrow \$10 \div 5 \\ = \$2$$

$$3 \text{ apples} \rightarrow 3 \times \$2 \\ = \$6$$

$$3 \text{ papayas} \rightarrow 3 \times \$5 \\ = \$15$$

$$\$6 + \$15 = \$21$$

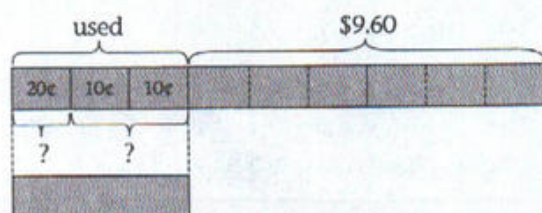
(b) Three apples and three papayas would cost \$21.

Answers: (a) \$5
(b) \$21

Solution to Question

97

Step 1 : Draw a model



Step 2 : Find the amount of money Joey used

$$\$9.60 \div 2 = \$4.80$$

Step 3 : Use 'Guess and Check' method to find how many ten-cent and twenty-cent coins she used

Number of 20c coins	Number of 10c coins	Total value of coins
4 $4 \times 20c = 80c$	8 $8 \times 10c = 80c$	\$1.60
10 $10 \times 20c = 200c$	20 $20 \times 10c = 200c$	\$4
12 $12 \times 20c = 240c$	24 $24 \times 10c = 240c$	\$4.80

(a) She used 12 twenty-cent coins.

(b) She used 24 ten-cent coins.

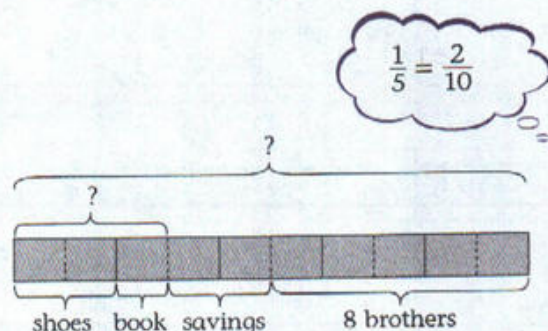
Answers: (a) 12 twenty-cent coins

(b) 24 ten-cent coins

Solution to Question

98

Step 1 : Draw a model



Step 2 : Find the amount of money James had at first

$$8 \times \$5 = \$40$$

$$5 \text{ units} \rightarrow \$40$$

$$1 \text{ unit} \rightarrow \$40 \div 5 = \$8$$

$$10 \text{ units} \rightarrow 10 \times \$8 = \$80$$

(a) James had \$80 at first.

Step 3 : Find the amount of money James spent

$$3 \text{ units} \rightarrow 3 \times \$8 = \$24$$

(b) James spent \$24.

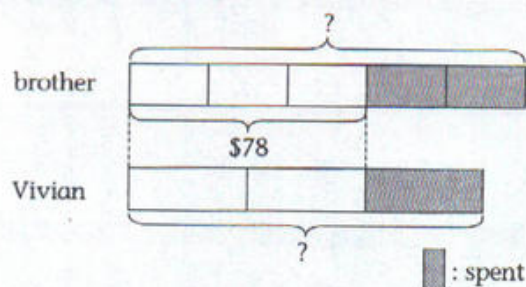
Answers: (a) \$80

(b) \$24

Solution to Question

99

Step 1 : Draw a model



Step 2 : Find the amount of money Vivian had at first

$$1 \text{ unit} \rightarrow \$78 \div 2 = \$39$$

$$3 \text{ units} \rightarrow 3 \times \$39 = \$117$$

(a) Vivian had \$117 at first.

Step 3 : Find the amount of money Vivian's brother had at first

$$3 \text{ units} \rightarrow \$78$$

$$1 \text{ unit} \rightarrow \$78 \div 3 = \$26$$

$$5 \text{ units} \rightarrow 5 \times \$26 = \$130$$

(b) Vivian's brother had \$130 at first.

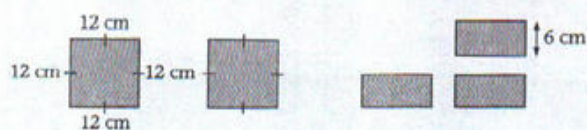
Answers: (a) \$117

(b) \$130

Solution to Question

100

Step 1 : Draw the diagrams of the squares and rectangles



Step 2 : Find the length of the wire at first

$$4 \times 12 \text{ cm} = 48 \text{ cm}$$

$$2 \times 48 \text{ cm} = 96 \text{ cm}$$

$$2 \times 96 \text{ cm} = 192 \text{ cm}$$

(a) The length of the wire is 192 cm.

Step 3 : Find the perimeter of each rectangle

$$96 \text{ cm} \div 3 = 32 \text{ cm}$$

Step 4 : Find the length of each rectangle

$$32 \text{ cm} - 6 \text{ cm} - 6 \text{ cm} = 20 \text{ cm}$$

$$20 \text{ cm} \div 2 = 10 \text{ cm}$$

Step 5 : Find the area of each rectangle

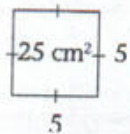
$$\begin{aligned} \text{Area} &= \text{Length} \times \text{Breadth} \\ &= 10 \text{ cm} \times 6 \text{ cm} \\ &= 60 \text{ cm}^2 \end{aligned}$$

(b) The area of each rectangle is 60 cm².

Answers: (a) 192 cm

(b) 60 cm²

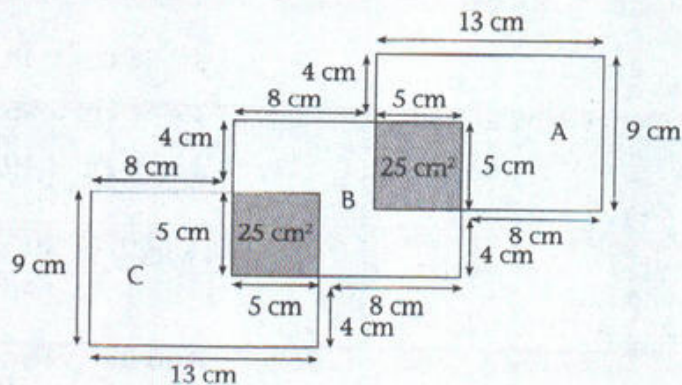
Step 1 : Find the length of each square



$$\text{Area} = \text{Length} \times \text{Breadth}$$

$$5 \text{ cm} \times 5 \text{ cm} = 25 \text{ cm}^2$$

Step 2 : Fill in the missing measurements and name the unshaded areas in the diagram



Step 3 : Find the perimeter of the whole figure

$$13 \text{ cm} + 9 \text{ cm} + 8 \text{ cm} + 4 \text{ cm} + 8 \text{ cm} + 4 \text{ cm} + 13 \text{ cm} + 9 \text{ cm} + 8 \text{ cm} + 4 \text{ cm} + 8 \text{ cm} + 4 \text{ cm} = 92 \text{ cm}$$

(a) The perimeter of the whole figure is 92 cm.

Step 4 : Find the area of each rectangle

$$\begin{aligned} \text{Area} &= \text{Length} \times \text{Breadth} \\ &= 13 \text{ cm} \times 9 \text{ cm} \\ &= 117 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Unshaded area A} &= 117 \text{ cm}^2 - 25 \text{ cm}^2 \\ &= 92 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Unshaded area B} &= 117 \text{ cm}^2 - 25 \text{ cm}^2 - 25 \text{ cm}^2 \\ &= 67 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Unshaded area C} &= 117 \text{ cm}^2 - 25 \text{ cm}^2 \\ &= 92 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Total unshaded area} &= 92 \text{ cm}^2 + 67 \text{ cm}^2 + 92 \text{ cm}^2 \\ &= 251 \text{ cm}^2 \end{aligned}$$

(b) The total area of the unshaded parts is 251 cm².

Answers: (a) 92 cm

(b) 251 cm²