P4 Full Solutions

Note : In all solution, u represent units

Chapter 1 Whole Numbers I

Let's Get Started 1.1

Exercise A

1.

Factors of 12: 1, 2, 3, 4, 6, 12

Factors of 30: 1, 2, 3, 5, 6, 10, 15, 30

Common factors of 12 and 30: **1, 2, 3, 6**

Highest common factor (HCF): **6**

2.

Factors of 18: 1, 2, 3, 6, 9, 18

Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36

Common factors of 18 and 36: **1, 2, 3, 6, 9, 18**

Highest common factor (HCF): **18**

Exercise B

1.

3	54	,	81
3	18	,	27
3	6	,	9
	2	,	3

Highest common factor (HCF): 3 × 3 × 3 = **27**

2.

2	28	,	40	,	60
2	14	,	20	,	30
	7	,	10	,	15

Highest common factor (HCF): 2 × 2 = **4**

3.

2	32	,	64	,	96
2	16	,	32	,	48
8	8	,	16	,	24
	1	,	2	,	3

Highest common factor (HCF): 2 × 2 × 8 = **32**

Let's Learn 1.1

Ask Yourself

No. The result will not give an equal number of each animal in each cage.

Think Further

Number of rabbits in each cage = 32 ÷ 4

= **8**

Number of hares in each cage = 40 ÷ 4

= **10**

Let's Practise 1.1

Question 1

4	72	,	84
3	18	,	21
	6	,	7

Most number of necklaces = 4 × 3

= 12

(a) Sonia can make **12 necklaces**.

(b) There are **7 blue beads** on each necklace.

Question 2

5	45	,	75
3	9	,	15
	3	,	5

Greatest number of trays needed = 5 × 3

= 15

(a) Mrs Rashid used **15 trays**.

(b) There were **3 brownies** on each tray.

Question 3

3	21	,	63	,	42
7	7	,	21	,	14
	1	,	3	,	2

Number of friends = 3 × 7

= 21

(a) Sheila invited **21 friends**.

(b) Each friend received **1 sticker, 3 sweets and 2 pens**.

Question 4

2	48	,	80	,	96
4	24	,	40	,	48
2	6	,	10	,	12
	3	,	5	,	6

(a) 2 × 4 × 2 = 16

The greatest possible length of each of the shorter pieces of copper wire is **16 cm**.

(b) 3 + 5 + 6 = 14

Burt can get **14 shorter pieces of copper wire** of equal length.

Question 5

3	24	,	42
2	8	,	14
	4	,	7

(a) 3 × 2 = 6

The greatest possible length of the side of each square is **6 cm**.

(b) 4 × 7 = 28

Peter needs **28 squares**.

Question 6

2	20	,	36
2	10	,	18
	5	,	9

(a) 2 × 2 = 4

The greatest possible length of the side of each square is **4 cm.**

(b) 5 × 9 = 45

Baker Lee can make **45 square cookies.**

Let's Get Started 1.2

Exercise A

1.

First ten multiples of 3: **3, 6, 9, 12,(15) 18, 21, 24, 27,(30)**

First ten multiples of 5: **5, 10,(15) 20, 25,(30) 35, 40, 45, 50**

First common multiple of 3 and 5: **15**

2.

First ten multiples of 4: **4, 8, 12, 16,(20) 24, 28, 32, 36,(40)**

First ten multiples of 10: **10,(20) 30,(40) 50, 60, 70, 80, 90, 100**

First common multiple of 4 and 10: **20**

Exercise B

1.

3	9	,	24
3	3	,	8
8	1	,	8
	1	,	1

FCM of 9 and 24 = 3 × 3 × 8

= **72**

2.

3	15	,	27
5	5	,	9
9	1	,	9
	1	,	1

FCM of 15 and 27 = 3 × 5 × 9

= **135**

3.

3	18	,	48
2	6	,	16
3	3	,	8
8	1	,	8
	1	,	1

FCM of 18 and 48 = 3 × 2 × 3 × 8

= **144**

Let's Learn 1.2

Ask Yourself

You will have to find the first common multiple since you will need to find the day on which both of them would meet (when these numbers should overlap each other).

Think Further

2	4	,	6	,	7
2	2	,	3	,	7
3	1	,	3	,	7
7	1	,	1	,	7
	1	,	1	,	1

FCM of 4, 6 and 7 = 2 × 2 × 3 × 7

= 84

They will cycle again **84 days later**.

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Let's Practise 1.2

Question 1

```
5 | 5  ,  10
2 | 1  ,  2
  | 1  ,  1
```

FCM of 5 and 10 = 5 × 2

= 10

7:35 pm $\xrightarrow{\text{+ 10 min}}$ 7:45 pm

Both lamps would flicker at **7:45 pm**.

Question 2

```
2 | 4  ,  8  ,  10
2 | 2  ,  4  ,  5
2 | 1  ,  2  ,  5
5 | 1  ,  1  ,  5
  | 1  ,  1  ,  1
```

FCM of 4, 8 and 10 = 2 × 2 × 2 × 5

= 40

The position of the first customer to receive all 3 free items is the **40th customer**.

Question 3

```
2 | 2  ,  6  ,  15
3 | 1  ,  3  ,  15
5 | 1  ,  1  ,  5
  | 1  ,  1  ,  1
```

FCM of 2, 6 and 15 = 2 × 3 × 5

= 30

The shortest possible length is **30 cm**.

Question 4

```
4 | 5  ,  8  ,  12
5 | 5  ,  2  ,  3
2 | 1  ,  2  ,  3
3 | 1  ,  1  ,  3
  | 1  ,  1  ,  1
```

LCM of 5, 8 and 12 = 4 × 5 × 2 × 3

= 120

Olivia needs to have at least **120 paper clips**.

Question 5

Multiples of 5	5	10	15	20	25	30	35	40	45	50
Add 3 sweets	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3
Actual sweets	8	13	18	23	28	33	38	(43)	48	53

Multiples of 6	6	12	18	24	30	36	42	48
Add 13 sweets	+13	+13	+13	+13	+13	+13	+13	+13
Actual sweets	19	25	31	37	(43)	49	55	61

Julie has **43 sweets**.

Question 6

Multiples of 4	4	8	12	16	20	24	28	32	36	40
Add 15 pens	+15	+15	+15	+15	+15	+3	+3	+3	+3	+3
Actual pens	19	23	27	31	35	(39)	43	47	51	55

Multiples of 7	7	14	21	28	35	42	49	56	63
Subtract 17 pens	−17	−17	−17	−17	−17	−17	−17	−17	−17
Actual pens	−	−	4	11	18	25	32	(39)	46

Least number of pens Kristine has is **39**.

Let's Get Started 1.3

2.

A	1u	15

C	1u

3.

A	1u	45

S	1u

Let's Learn 1.3

Ask Yourself

1. More white chips

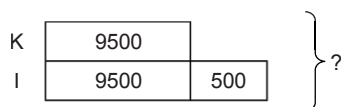2. The bar representing white chips should be longer than that representing the black chips.

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Think Further

There would be more black chips left in the bag.
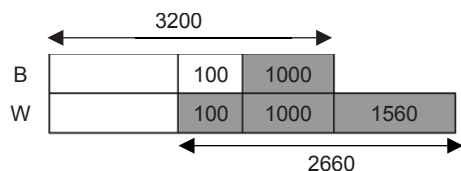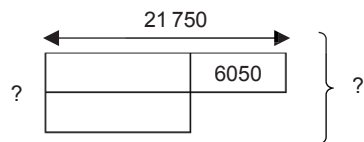

Let's Practise 1.3

Question 1

9500 + 500 = 10 000

Irene picked 10 000 tea leaves.

9500 + 10 000 = 19 500

They picked **19 500 tea leaves** in all.
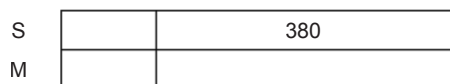

Question 2

21 750 – 6050 = 15 700
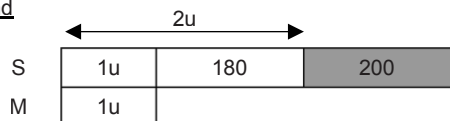
The smaller number is 15 700.

15 700 + 21 750 = 37 450

Sum of the two numbers is **37 450**.

Question 3

At first

End

1u = 180

2u = 2 × 180

= 360

Sheila had 360 seashells in the end.

Question 3 (Cont.)

360 + 200 = 560

Sheila had **560 seashells** at first.

Question 4

At first
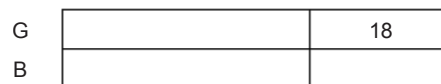
End
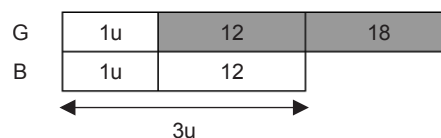
2u = 12

1u = 12 ÷ 2

= 6

There were 6 girls at the library in the end.

6u + 18 = 6 × 6 + 18

= 54

There were **54 children** at the library at first.

Question 5

At first

End
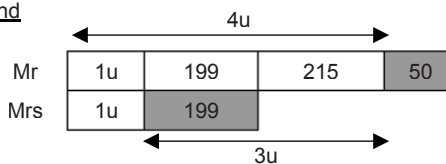
3u = 199 + 215

= 414

1u = 414 ÷ 3

= 138

Mrs Lim had 138 button pins in the end.

5u + 199 + 50 = 5 × 138 + 249

= 939

They had **939 button pins** at first.

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Question 6

At first

A		4730
B		

End

3u

A	1u	900	2880	1850
B	1u	900		

2u
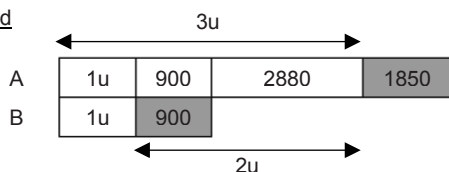
$2u = 900 + 2880$

$\quad = 3780$

$1u = 3780 ÷ 2$

$\quad = 1890$

There were 1890 fruit tarts in the end.

$1u + 900 = 1890 + 900$

$\quad\quad\quad = 2790$

There were **2790 fruit tarts** in Bakery B at first.

Let's Get Started 1.4

2.

End

C	
B	

At first

C		1350
B		

3.

At first

A	
P	

End

A	1u	7510	
P	1u	7510	12 500

2u

4.

End

C	
E	

At first

C		31	
E		31	280

} 1201

5.

End

P	
S	

At first

3u

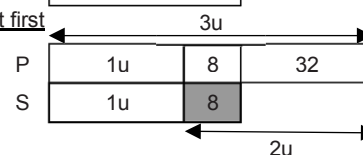| P	1u	8	32
S	1u	8	

2u

_____
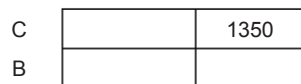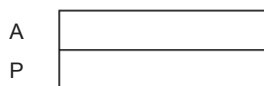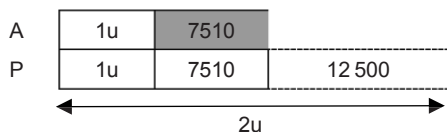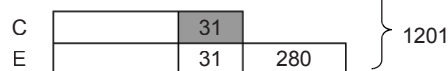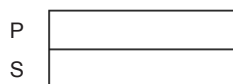
Let's Learn 1.4

Ask Yourself

1. From 'At first' since it is given in the question that Sandy and Ella have the same amount of money at first.

2. The 'End' model should be worked on because the changes occurred after spending on the necklace. This makes the comparison easier and to clearly see the "At first" model.
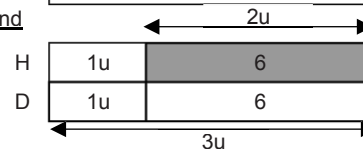
_____

Let's Practise 1.4

Question 1

At first

H	
D	

End

2u

H	1u	6
D	1u	6

3u
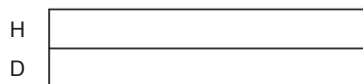
$2u = 6$

$1u = 6 ÷ 2$

$\quad = 3$

$3u = 3 × 3$

$\quad = 9$

Helen had **9 soft toys** at first.

Question 2

At first

A
B

End

5u

A | 1u | 24
B | 1u | 4u
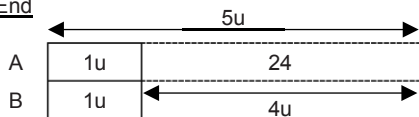
4u = 24

1u = 24 ÷ 4

= 6

Ben took **6 photos**.
_____

Question 3

At first

X
Y

End

4u

X | | 120 | 1470
Y | | 120 |

3u

1u
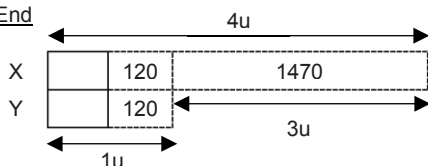
3u = 1590 − 120

= 1470

1u = 1470 ÷ 3

= 490

1u − 120 = 490 − 120

= 370

There were **370 trees** in Orchard X at first.

_____

Question 4

End

C
D

At first

6u

C | | 1000 | 6200
D | | 1000 |

5u

1u
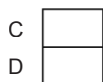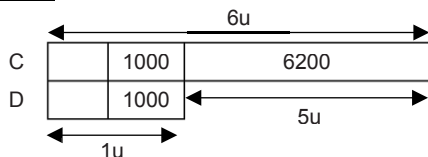
Question 4 (Cont.)

5u = 7200 − 1000

= 6200

1u = 6200 ÷ 5

= 1240

6u = 6 × 1240

= 7440

Constance had **$7440** at first.
_____

Question 5

End

F
G

At first

F | 1u | 24 |
G | 1u | 24 | 8
} 96
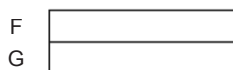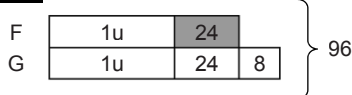
2u = 96 − 24 − 8

= 64

1u = 64 ÷ 2

= 32

Fred had 32 eggs at first.

1u + 24 +8 = 32 + 24 + 8

= 64

Geneve has **64 eggs** at first.

_____

Question 6

End

M
W

At first

3u

M | 1u | 6 | 24
W | 1u | 6 |

2u
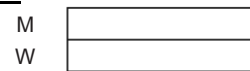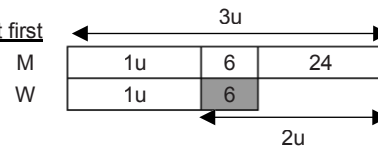
2u = 6 + 24

= 30

1u = 30 ÷ 2

= 15

There were 15 women at the park at first.

1u + 6 = 15 + 6

= 21

21 + 21 = 42

There were a total of **42 men and women** at the park in the end.

Let's Get Started 1.5

2.

At first

A		30

C		

End

A	12	15	30

C	12	15	30	15

3.

End

I	

O	

At first

I		245	245

O		245	

} 860

4.

At first

J		45

P		

End

80

J		1u	45	1u

P		1u	

5.

End

2u

C	

R	

At first

3u

C	1u	200	200

R	1u	200	

Let's Learn 1.5

Ask Yourself

From 'At first' since it is given in the question that Sean and Jovan had an equal number of toy cars at first.

Think Further

Sean's toy cars decrease by 29 and Jovan's toy cars increase by 58.

Let's Practise 1.5

Question 1

At first

S	

T	

End

S	1u	14

T	1u	14	14

2u

$2u = 14 + 14$

$ = 28$

$1u = 28 ÷ 2$

$ = 14$

Seraphine had 14 wafers in the end.

$3u = 3 × 14$

$ = 42$

Tanya had **42 wafers** in the end.

Question 2

At first

J		4640

Y		

End

9u

J	1u	520	4640	520

Y	1u	520		

8u

$8u = 520 + 4640 + 520$

$ = 5680$

$1u = 5680 ÷ 8$

$ = 710$

Yvette has **710 bookmarks** in the end.

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Question 3

<u>End</u>

<u>At first</u>

$2u = 15\,000 - 3700 - 3700$

$\quad = 7600$

$1u = 7600 \div 2$

$\quad = 3800$

$1u + 3700 + 3700 = 3800 + 3700 + 3700$

$\quad\quad\quad\quad\quad\quad\quad = 11\,200$

Kaitlin had **$11 200** at first.

Question 4

<u>Morning</u>

<u>Evening</u>

Total towels transferred from A to B = 2500 − 700

$\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad = 1800$

$2u = 3600$

$1u = 3600 \div 2$

$\quad = 1800$

There were 1800 towels in Factory A in the evening.

$1800 + 1800 = 3600$

Each factory had **3600 towels** in the morning.

Question 5

<u>At first</u>

<u>End</u>

Total cookies from Melvin to Johnny = 47 − 17

$\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad = 30$

$1u = 5 + 25 + 5$

$\quad = 35$

Melvin had 35 cookies in the end.

$1u + 5 = 35 + 5$

$\quad\quad\quad = 40$

Johnny had **40 cookies** at first.

Question 6

$8u = 1680$

$1u = 1680 \div 8$

$\quad = 210$

$3u = 3 \times 210$

$\quad = 630$

630 cards must be moved B to A.

Chapter **2** **Whole Number II**

Let's Get Started 2.1

2.

What had changed?	What remained unchanged?
• Damien's money	• Gillian's money
• Total amount of money both had	
• Difference between the amount of money both had	

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3.

What had changed?	What remained unchanged?
• Volume of water in Tank B • Total volume of water in Tank A and Tank B • Difference between the volume of water in Tank A and Tank B	• Volume of water in Tank A

4.

What had changed?	What remained unchanged?
• Number of women • Total number of passengers • Difference between the number of men and the number of women	• Number of men

Let's Learn 2.1

Ask Yourself

1. The number of cookies Jordan had changed as he ate some.

2. Michelle still had the same number of cookies.

Think Further

In the revised question, Michelle's number of cookies is no longer the same. Now the number of cookies Jordan had remained constant.

Because of this, the 1 unit now represents the amount Michelle had left rather than the amount Jordan had left.

Let's Practise 2.1

Question 1

At first

End

Question 1 (Cont.)

$4u = 16 + 4$

$\quad = 20$

$1u = 20 ÷ 4$

$\quad = 5$

Wayne had 5 shirts in the end.

$5u = 5 × 5$

$\quad = 25$

Paul had **25 shirts** in the end.

Question 2

Actual

If

$5u = 23\,400 - 19\,200$

$\quad = 4200$

$1u = 4200 ÷ 5$

$\quad = 840$

$1u + 4200 + 19\,200 = 840 + 23\,400$

$\qquad\qquad\qquad = 24\,240$

There were **24 240 ants** in Farm A.

Question 3

At first

End

$2u = 12 + 12$

$\quad = 24$

$1u = 24 ÷ 2$

$\quad = 12$

Denise had 12 hair clips in the end.

$1u + 12 = 12 + 12$

$\qquad = 24$

Denise had **24 hair clips** at first.

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Question 4

Actual
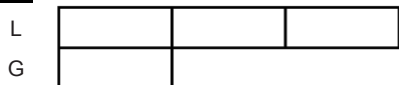
If
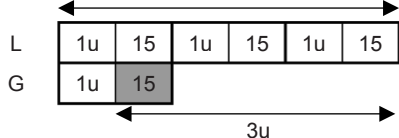
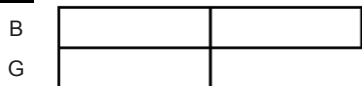$1u = 15 + 15 + 15$

$\quad = 45$
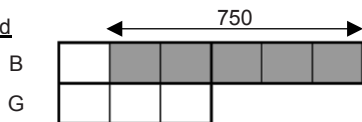
$1u + 15 = 45 + 15$

$\qquad = 60$

Gillian has **60 sweets**.

Question 5

At first

End

$5u = 750$

$1u = 750 \div 5$

$\quad = 150$

There were 150 boys at the science fair in the end.
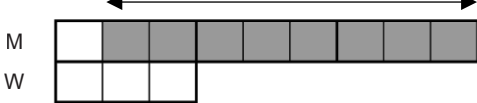
$9u = 9 \times 150$

$\quad = 1350$

There were **1350 children** at the Science fair at first.

Question 6

At first

End

$8u = 3200$

$1u = 3200 \div 8$

$\quad = 400$

There were 400 men at the convention centre in the end.

Question 6 (Cont.)

$2u = 2 \times 400$

$\quad = 800$

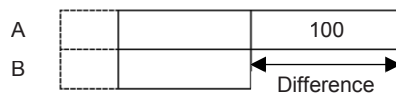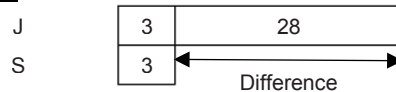There were **800 more women** than men at the convention in the end.

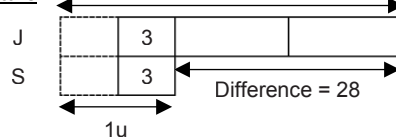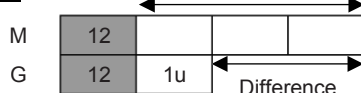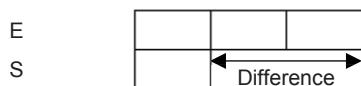**Let's Get Started 2.2**

2.

At first

End

3.

Now

Future
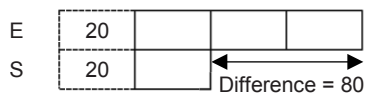

4.

Now

After

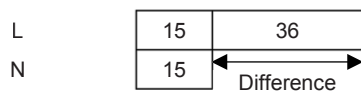+hinkingMath™

5.

At first

End

Let's Learn 2.2

Ask Yourself

1. It is a Difference Unchanged problem because the difference in their age never changes.

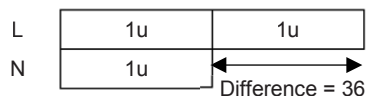2. The age of Aunt Lisa and the age of her nephew change as time passes.

Think Further

Aunt Lisa is 51 years old and her nephew is 15 years old. How old will Aunt Lisa be when she is twice as old as her nephew?

Now

Future

1u = 36 (nephew's age in the future)

36 + 36 = 72

Aunt Lisa will be **72 years old** when she is twice as old as her nephew.

Let's Practise 2.2

Question 1

Present

Jamie   = 50 years old

Daughter = 29 years old

Difference = 21 years old

Question 1 (Cont.)

Past
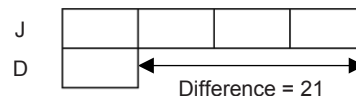
3u = 21

1u = 21 ÷ 3

   = 7

29 – 7 = 22

Jamie's age was 4 times as old as her daughter **22 years ago**.

Question 2

Age difference between Alicia and Mrs Fong = 12 years

Present
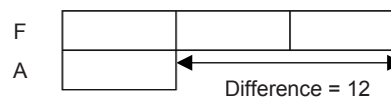
2u = 12

1u = 12 ÷ 2

   = 6

Mrs Fong = 3 × 6

        = 18

7 years' time (future)

18 + 7 = 25

Mrs Fong will be **25 years old** in 7 years' time.

Question 3

(a) Present

8u = 64 – 8 – 8

   = 48

1u = 48 ÷ 8

   = 6

6u = 6 × 6

   = 36

Their age difference at present is **36 years**.

Question 3 (Cont.)

(b) <u>Some years later</u>
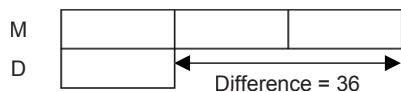
$2u = 36$

$1u = 36 \div 2$

$\quad = 18$

Dan will be **18 years old** when Mike is 3 times as old as him.

Question 4

<u>At first</u>
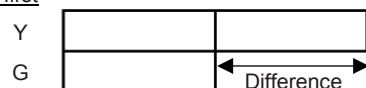
<u>End</u>
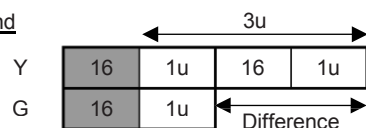
$1u = 16$

There were 16 green chairs in the hall in the end.

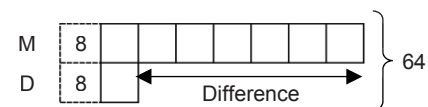$4u = 4 \times 16$

$\quad = 64$

There were **64 chairs** altogether in the hall in the end.

Question 5

<u>At first</u>
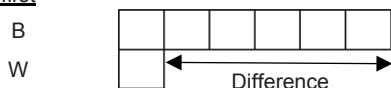
<u>End</u>
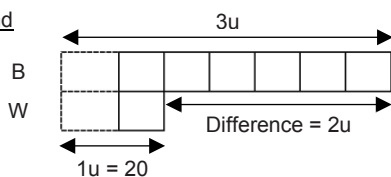
$2u = 2 \times 20$

$\quad = 40$

$40 \div 5 = 8$

Mrs Chan had 8 whistles at first.

$20 - 8 = 12$

$12 \times 2 = 24$

Mrs Chan bought **24 balloons and whistles** in all.

Question 6

<u>At first</u>
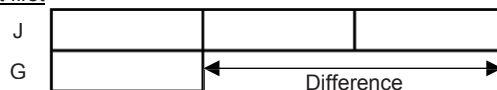
<u>End</u>
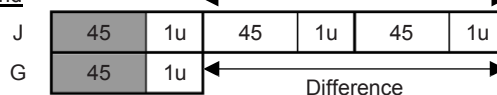
$5u = 45 + 45$

$\quad = 90$

$1u = 90 \div 5$

$\quad = 18$

$9u = 9 \times 18$

$\quad = 162$

They had **$162** altogether in the end.

Let's Get Started 2.3

2.
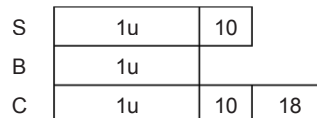
3.
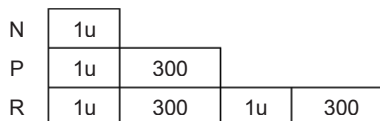
Let's Learn 2.3

Ask Yourself

1. The repeated item is the apricots.

2. When drawing model, make the model representing the apricots in the middle as it makes it easier to make comparison.
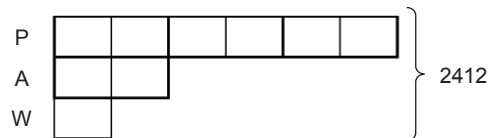
+hinkingMath™

Think Further

Total = 6u + 2u + 1u

= 9u

9u = 2412

1u = 2412 ÷ 9

= 268

6u = 6 × 268

= 1608

There were **1608 pineapples**.

Let's Practise 2.3

Question 1

25 + 25 + 30 = 80

3u = 344 − 80

= 264

1u = 264 ÷ 3

= 88
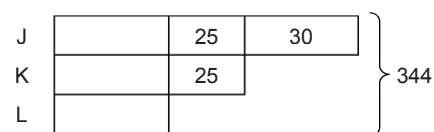
Leonard had $88.

88 + 25 + 30 = 143

Jason had **$143**.

Question 2

1u = 40

5u = 5 × 40

= 200

4 × 36 = 144

5u + 144 = 200 + 144

= 344
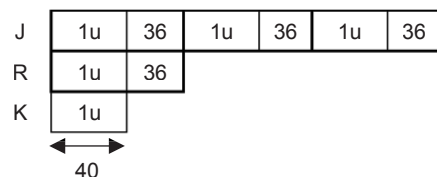
The girls had **344 pairs of earrings** altogether.

Question 3

25 × 4 = 100

5u = 275 − 100

= 175

1u = 175 ÷ 5

= 35
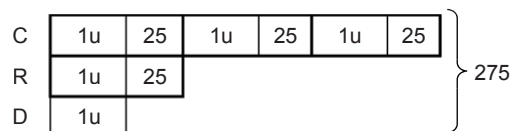
There were 35 stalks of daisies.

1u + 25 = 35 + 25

= 60

There were **60 stalks of roses**.

Question 4
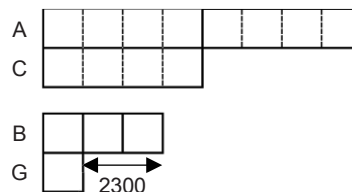
2u = 2300

1u = 2300 ÷ 2

= 1150

8u = 8 × 1150

= 9200

There were **9200 adults** at the book fair.

Question 5
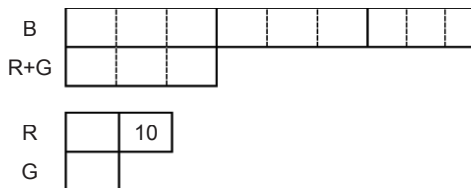
Difference between red and grey = 2u − 1u

= 1u

1u = 10

Difference between black and red = 9u − 2u

= 7u

7u = 7 × 10

= 70

Mrs Wong has **70 more** black than red shawls.

Question 6
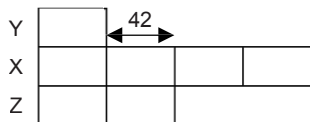
Difference between Z and Y = 2u – 1u

$$= 1u$$

1u = 42

2u = 2 × 42

$$= 84$$

4u = 4 × 42

$$= 168$$

Storerooms X, Y and Z can hold **168, 42** and **84 boxes** respectively.

Let's Get Started 2.4

2.

Item	Quantity of items	Value of each item (wheels)
C	1u	4
M	1u	2

3.

Item	Quantity of items	Value of each item (drawer)
C	4	2u
R	9	1u

4.

Item	Quantity of items	Value of each item (stationery)
Pens	15	3u
Pencils	10	1u

Let's Learn 2.4

Ask Yourself

1. The quantity is represented by "4 times as many as" and the values are $3 and $1 for pineapples and peaches respectively.

2. The problem sum provides both the quantity and the values and there is only one total provided. In Guess and Check questions we are normally provided with two totals.

Think Further

Farmer Sally sold a total of 150 pineapples and peaches. Each pineapple was sold at $3 and each peach at $2 less. Farmer Sally collected $210 from the sale of all the fruits. How many more peaches than pineapples did she sell?

Let's Practise 2.4

Question 1

Items	Quantity of items	×	Value of each unit (wheels)	Total value (wheels)
B	2u	×	2	4u
G	1u	×	4	4u
Total	3u			8u

8u = 160

1u = 160 ÷ 8

$$= 20$$

There were 20 go-karts.

3u = 3 × 20

$$= 60$$

There were **60 vehicles** altogether.

Question 2

Items	Quantity of items	×	Value of each unit ($)	Total value ($)
C	2u	×	1	2u
D	1u	×	8	8u
Total	3u			10u

10u = 80

1u = 80 ÷ 10

$$= 8$$

She sold **8 more** coconuts than durians.

Question 3

Items	Quantity of items	×	Value of each unit (candies)	Total value (candies)
G	1u	×	2	2u
B	3u	×	1	3u
Total	4u			5u

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Question 3 (Cont.)

5u = 150

1u = 150 ÷ 5

   = 30

There were 30 girls.

2u = 2 × 30

   = 60

There were **60 more** boys than girls at the party.

Question 4

Items	Quantity of items	×	Value of each unit (treats)	Total value (treats)
G	3u	×	3	9u
S	1u	×	2	2u
Total	4u			11u

9u – 2u = 7u

7u = 35

1u = 35 ÷ 7

   = 5

There were 5 sheep.

4u = 4 × 5

   = 20

There were **20 animals** that received the treats from the children.

Question 5

Items	Quantity of items	×	Value of each unit (chicken wings)	Total value (chicken wings)
G	3u	×	4	12u
B	1u	×	8	8u
Total	4u			20u

12u – 8u = 4u

4u = 52

1u = 52 ÷ 4

   = 13

20u = 20 × 13

    = 260

260 chicken wings were eaten altogether.

Question 6

Items	Quantity of items	×	Value of each unit (strawberries)	Total value (strawberries)
A	12	×	3u	36u
C	30	×	1u	30u
Total	42			66u

36u – 30u = 6u

 6u = 42

 1u = 42 ÷ 6

   = 7

66u = 66 × 7

    = 462

They picked **462 strawberries** altogether.

Let's Get Started 2.5

3.
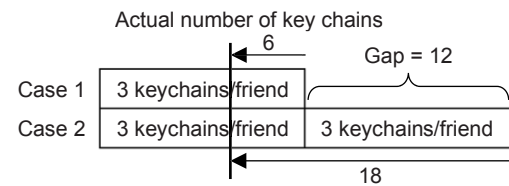
18 – 6 = 12 (Gap in keychains)

6 – 3 = 3 (Difference in keychains per friend)

4.
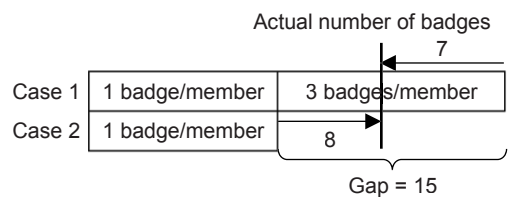
8 + 7 = 15 (Gap in badges)

4 – 1 = 3 (Difference in badges per member)

Let's Learn 2.5

Ask Yourself

When both conditions result in a 'short' or 'left over' scenario, the two results are subtracted. When one result is 'short' and other is 'left over', we add the two results.

Think Further

Pablo has some money. If he buys 7 books, he will be short of $26. If he buys 5 books, he will be left with $2. Find the amount of money Pablo has.

Let's Practice 2.5

Question 1
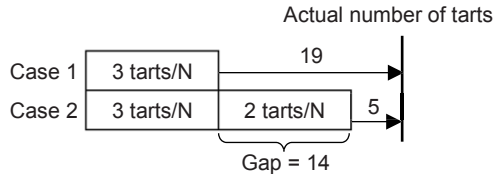
Actual number of tarts

Gap = 19 – 5

    = 14 (tarts)

Difference = 5 – 3

       = 2 (tarts per neighbours)

(a)   14 ÷ 2 = 7

     Mrs Lee shared the tarts with **7 neighbours.**

(b)   Number of tarts made:

     Using Case 1: 7 × 3 + 19 = 40

     Using Case 2: 7 × 5 + 5 = 40 (checked)

     Mrs Lee made **40 tarts**.

Question 2
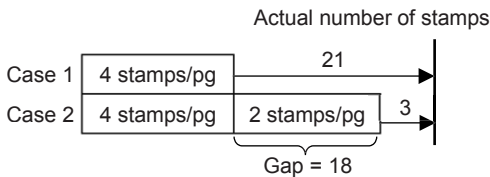
Actual number of stamps

Gap = 21 – 3

    =18 (stamps)

Difference = 6 – 4

       = 2 (stamps per page)

(a)   18 ÷ 2 = 9

     The stamps fill **9 pages** of the album.

(b)   Number of stamps:

     Using Case 1: 9 × 4 + 21 = 57

     Using Case 2: 9 × 6 + 3 = 57 (checked)

     Amos had **57 stamps**.

Question 3
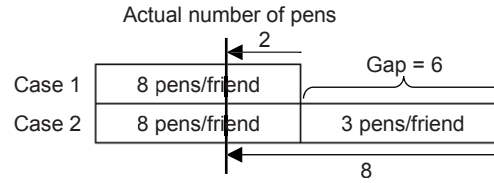
Actual number of pens

Gap = 8 – 2

    = 6 (pens)

Difference = 11 – 8

        = 3 (pens per friend)

(a)   6 ÷ 3 = 2

     Shawn has **2 friends**.

(b)   Number of pens:

     Using Case 1: 2 × 8 – 2 = 14

     Using Case 2: 2 × 11 – 8 = 14 (checked)

     Shawn has **14 pens**.

Question 4
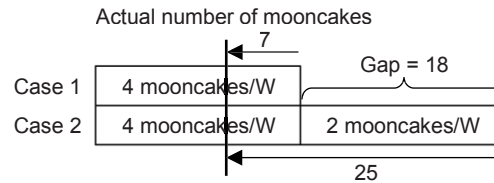
Actual number of mooncakes

Gap = 25 – 7

    = 18 (mooncakes)

Difference = 6 – 4

       = 2 (mookcakes per worker)

(a)   18 ÷ 2 = 9

     There were **9 workers**.

(b)   Number of mooncakes bought:

     Using Case 1: 9 × 4 – 7 = 29

     Using Case 2: 9 × 6 – 25 = 29 (checked)

     Mr Tan bought **29 mooncakes**.

Question 5

Actual number of beads

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Question 5 (Cont.)

Gap = 10 + 8

= 18
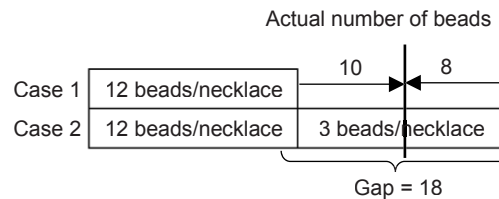
Difference between Case 1 and Case 2 = 15 – 12

= 3

(a) 18 ÷ 3 = 6

Evelyn made **6 necklaces**.

(b) Number of beads:

Using Case 1: 6 × 12 + 10 = 82

Using Case 2: 6 × 15 – 8 = 82 (checked)

Evelyn bought **82 beads**.

Question 6

(a)

Actual number of marbles

Gap = 36 + 60

= 96 (marbles)

Difference = 10 – 6

= 4
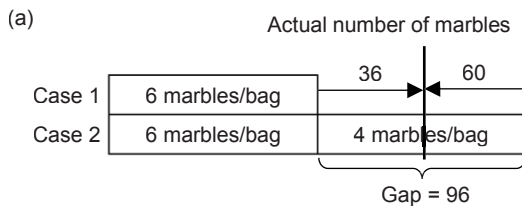
96 ÷ 4 = 24

There were 24 bags.

Number of marbles:

Using Case 1: 24 × 6 + 36 = 180

Using Case 2: 24 × 10 – 60 = 180 (checked)

Mr Tang bought **180 marbles**.

(b)

4u = 180

1u = 180 ÷ 4

= 45
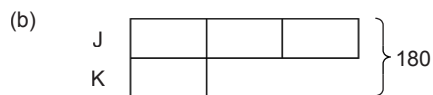
Keith received **45 marbles**.

Let's Get Started 2.6

1. **Quantity × Value**

2. **Guess-and-Check**

3. **Guess-and-Check**

4. **Guess-and-Check**

5. **Quantity × Value**

Let's Learn 2.6

Ask Yourself

1. Total number of chickens and cows

Total number of legs

2. Use Guess-and-Check

Think Further

Solve using Quantity × Value as the quantity of each item is now given.

Items	Quantity of items	×	Value of each unit (legs)	Total value (legs)
Chickens	2u	×	2	4u
Cows	1u	×	4	4u
Total	3u			8u

8u = 64

1u = 64 ÷ 8

= 8

2u = 2 × 8

= 16

There are **16 chickens**.

Let's Practise 2.6

Question 1

No. of hamsters	No. of hamsters' legs	No. of birds	No. of birds' legs	Total no. of legs	Check
32	32 × 4 = 128	0	0	128	✗
31	31 × 4 = 124	1	1 × 2 = 2	124 + 2 = 126	✗
32 – 11 = 21	21 × 4 = 84	11	11 × 2 = 22	106	✓

Difference = 128 – 106

= 22

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Question 1 (Cont.)

Gap = 128 – 126

$\qquad$ = 2

Number of birds = 22 ÷ 2

$\qquad\qquad$ = 11

There are **11 birds** in the shop.

Question 2

No. of red pens	Total cost of red pens	No. of black pens	Total cost of black pens	Total cost of all pens	Check
40	40 × 5 = 200	0	0	200	✘
39	39 × 5 = 195	1	1 × 2 = 2	195 + 2 = 197	✘
40 – 18 = 22	22 × 5 = 110	18	18 × 2 = 36	146	✓

Difference = 200 – 146

$\qquad\qquad$ = 54

Gap = 200 – 197

$\qquad$ = 3

Number of black pens = 54 ÷ 3

$\qquad\qquad\qquad$ = 18

There are **18 black pens** in the box.

Question 3

No. of motor-cycles	No. of motorcycle wheels	No. of cars	No. of car wheels	Total no. of wheels	Check
54	54 × 2 = 108	0	0	108	✘
53	53 × 2 = 106	1	1 × 4 = 4	106 + 4 = 110	✘
54 – 29 = 25	25 × 2 = 50	29	29 × 4 = 116	166	✓

Difference = 166 – 108

$\qquad\qquad$ = 58

Gap = 110 – 108

$\qquad$ = 2

Number of cars = 58 ÷ 2

$\qquad\qquad$ = 29

There are **29 cars**.

Question 4

No. of bottles of water	Total cost of bottles of water	No. of bottles of fruit juice	Total cost of bottles of fruit juice	Total amount collected	Check
30	30 × 1 = 30	0	0	30	✘
29	29 × 1 = 29	1	1 × 2 = 2	29 + 2 = 31	✘
30 – 8 = 22	22 × 1 = 22	8	8 × 2 = 16	38	✓

Difference = 38 – 30

$\qquad\qquad$ = 8

Gap = 31 – 30

$\qquad$ = 1

Number of bottles of fruit juice in one day = 8 ÷ 1

$\qquad\qquad\qquad\qquad$ = 8

Number of bottles of fruit juice sold in one week = 7 × 8

$\qquad\qquad\qquad\qquad\qquad$ = 56

Aunt Susie sold **56 bottles of fruit juice** in a week.

Question 5

No. of shirts without defects	Amount earned	No. of shirts with defects	Amount deducted	Amount Ali received	Check
20	20 × 8 = 160	0	0	160	✘
19	19 × 8 = 152	1	1 × 2 = 2	152 – 2 = 150	✘
20 – 3 = 17	17 × 8 = 136	3	3 × 2 = 6	130	✓

Difference = 160 – 130

$\qquad\qquad$ = 30

Gap = 160 – 150

$\qquad$ = 10

Number of shirts with defects = 30 ÷ 10

$\qquad\qquad\qquad\qquad$ = 3

There were **3 shirts with defects** on that particular week.

Question 6

No. of correct answers	Points received	No. of incorrect answers	Points deducted	Total points awarded	Check
45	45 × 2 = 90	0	0	90	✘
44	44 × 2 = 88	1	1 × 1 = 1	88 – 1 = 87	✘
45 – 6 = 39	39 × 3 = 78	6	6 × 1 = 6	72	✓

Difference = 90 – 72

$\qquad\qquad$ = 18

Gap = 90 – 87

$\qquad$ = 3

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Question 6 (Cont.)

Number of incorrect answers $= 18 \div 3$

$\qquad\qquad\qquad\qquad\quad = 6$

Number of correct answers $= 45 - 6$

$\qquad\qquad\qquad\qquad\quad = 39$

Matthias answered **39 questions** correctly.

Question 1

$2u = 2160 - 652$

$\quad = 1508$

$1u = 1508 \div 2$

$\quad = 754$

$1u + 652 = 754 + 652$

$\qquad\qquad = 1406$

1406 adults attended the Gala Premier.

Question 2

At first

End

$5u = 40 - 5$

$\quad = 35$

$1u = 35 \div 5$

$\quad = 7$

$2u = 2 \times 7$

$\quad = 14$

Each girl had **14 bottle caps** at first.

Question 3

End

At first

$2u = 16$

$1u = 16 \div 2$

$\quad = 8$

There were 8 men at first.

$3u = 3 \times 8$

$\quad = 24$

There were **24 women** at the event at first.

Question 4

End

At first

(a) $3u = 360$

$\quad 1u = 360 \div 3$

$\qquad = 120$

Each of them had **120 cards** in the end.

(b) $120 - 70 - 20 = 30$

Ian had **30 cards** at first.

Question 5

At first

H		80
J		

At first

3u

H	1u	24	80
J	1u	24	

2u
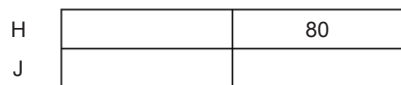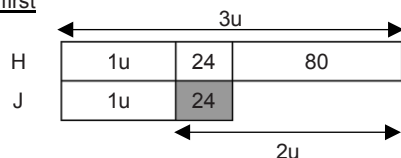
2u = 24 + 80

= 104

1u = 104 ÷ 2

= 52

Johan had 52 marbles in the end.

1u + 24 = 52 + 24

= 76

Johan had **76 marbles** at first.

Question 6

At first

E		40
F		

} 200

End

3u

E	?	1u	40
F	?	1u	

2u
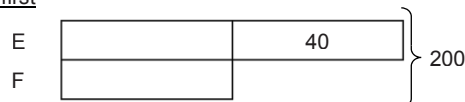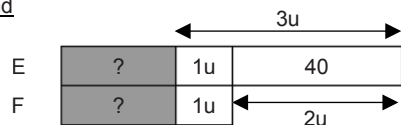
(a) 200 – 40 = 160

160 ÷ 2 = 80

Fred had **$80** at first.

(b) 2u = 40

1u = 40 ÷ 2

= 20

Fred had $20 left in the end.

80 – 20 = 60

Each set of game cards cost **$60**.

Question 7

N	1u	16	40
L	1u	16	
M	1u		

} 369
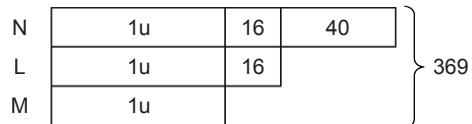
(a) 16 + 16 + 40 = 72

3u = 369 – 72

= 297

1u = 297 ÷ 3

= 99

Maddie collected **99 seashells**.

(b) 99 + 16 = 115

Louisa collected **115 seashells**.

Question 8

Items	Quantity of items	×	Value of each unit ($)	Total value ($)
C	4	×	1u + 6	4u + 24
W	6	×	1u	6u
Total	10			10u + 24

10u = 124 – 24

= 100

1u = 100 ÷ 10

= 10

Each walnut cake cost $10.

10 + 6 = 16

Each cheesecake cost **$16**.

Question 9

Actual number of lollipops

5

Case 1	8 lollipops/child	3 lollipops/child
Case 2	8 lollipops/child	25

Gap = 30
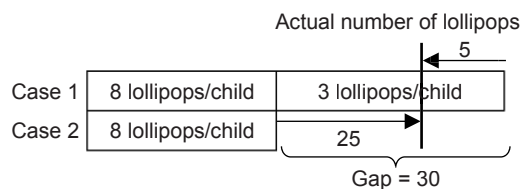
Gap = 25 + 5

= 30 (lollipops)

Difference = 8 – 5

= 3 (lollipops per child)

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Question 9 (Cont.)

(a) $30 \div 3 = 10$

There were **10 children** altogether.

(b)   Number of lollipops:

Case 1: $10 \times 11 - 5 = 105$

Case 2: $10 \times 8 + 25 = 105$ (checked)

There were **105 lollipops**.

Question 10

At first

X	880	370
Y	880	

End

370

X	880	1u	100	1u
Y	880	1u		

$1250 - 880 = 370$

$2u = 370 - 100$

$= 270$

$1u = 270 \div 2$

$= 135$

135 g of sand must be transferred from Bag X to Bag Y.

Question 11

At first

N		76
V		

End

3u

N	1u	12	76
V	1u	12	

2u

$2u = 12 + 76$

$= 88$

$1u = 88 \div 2$

$= 44$

Veronica had 44 stalks of roses in the end.

$1u + 12 + 76 = 44 + 12 + 76$

$= 132$

Nisa had **132 stalks of roses** at first.

Question 12

Difference between Emma's age and Fatima's age

$= 29 - 17$

$= 12$

Now

F	17	12
E	17	Difference

? years ago (Past)

2u

F	1u	12
E	1u	Difference

$1u = 12$

$17 - 12 = 5$

Fatima was twice as old as Fatima **5 years ago**.

Question 13

D	1u	1u	1u	×3	} 200
S	1u				

Total $= 3u + 3u + 3u + 1u$

$= 10u$

$10u = 200$

$1u = 200 \div 10$

$= 20$

$6u = 6 \times 20$

$= 120$

2 such dresses cost **$120**.

Question 14

M	1u	1u	1u	1u	} 2432
L	1u				
T	1u	998			

$6u = 2432 - 998$

$= 1434$

$1u = 1434 \div 6$

$= 239$

$4u = 4 \times 239$

$= 956$

The mobile phone cost **$956**.

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Question 15

Multiples of 5	5	10	15	20	25	30
Add 4 lollipops	+4	+4	+4	+4	+4	+4
Actual lollipops	9	14	19	24	29	(34)

Multiples of 8	8	16	24	32	40	48
Add 2 lollipops	+2	+2	+2	+2	+2	+2
Actual lollipops	10	18	26	(34)	42	50

Jeremy has **34 lollipops**.

Question 16

End
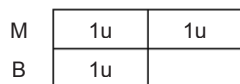
At first
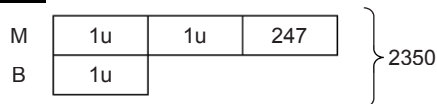
3u = 2350 – 247

= 2103

1u = 2103 ÷ 3

= 701

2u = 2 × 701

= 1402

Magnets (at first) = 1402 + 247

= 1649

Mr Lim had **1649 magnets** at first.

Question 17

End
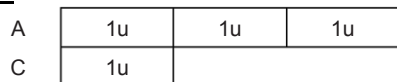
At first
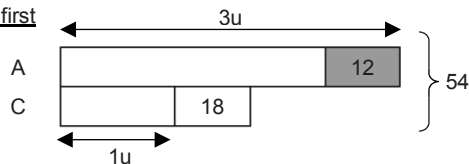
4u = 54 + 12 – 18

= 48

Question 17 (Cont.)

1u = 48 ÷ 4

= 12

1u + 18 = 12 + 18

= 30

30 children boarded the bus at the interchange.

Question 18

4T + 5S = 56

2T + 3S = 30

4T + 6S = 2 × 30

= 60

1S = 60 – 56

= 4

10S = 10 × 4

= 40

10 such pairs of shorts cost **$40**.

Question 19

At first
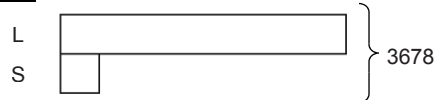
End
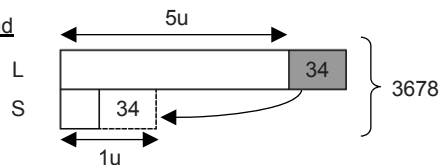
6u = 3678

1u = 3678 ÷ 6

= 613

Shiro (at first) = 613 – 34

= 579

Shiro had **$579** at first.

Question 20

No. of adult tickets	Total cost of adult tickets	No. of child tickets	Total cost of child tickets	Total cost	Check
35	35 × 12 = 420	0	0	420	✗
34	34 × 12 = 408	1	1 × 5 = 5	408 + 5 = 413	✗
35 – 15 = 20	20 × 12 = 240	15	15 × 5 = 75	315	✓

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Question 20 (Cont.)

Difference = 420 − 315

$\qquad$ = 105

Gap = 420 − 413

$\qquad$ = 7

Number of child tickets = 105 ÷ 7

$\qquad\qquad\qquad\qquad$ = 15

Alison bought **15 child tickets**.

Chapter 3 Fractions

Let's Get Started 3.1

1. (a) $\frac{10}{7}$ (b) $\frac{23}{10}$ (c) $2\frac{3}{6}$ or $2\frac{1}{2}$ (d) $\frac{57}{11}$ (e) $5\frac{2}{9}$

2. (a) $\frac{2}{3} = \frac{14}{21}$ $\frac{1}{7} = \frac{3}{21}$

$\qquad$ Total fraction painted $= \frac{14}{21} + \frac{3}{21}$

$\qquad\qquad\qquad\qquad\qquad = \frac{17}{21}$

$\quad$ (b) Fraction unpainted $= 1 - \frac{17}{21}$

$\qquad\qquad\qquad\qquad\qquad = \frac{21}{21} - \frac{17}{21}$

$\qquad\qquad\qquad\qquad\qquad = \frac{4}{21}$

$\quad$ (c) $\frac{1}{3} = \frac{7}{21}$ $\frac{1}{7} = \frac{3}{21}$

$\qquad$ Fraction Bryan painted $= \frac{7}{21} + \frac{3}{21}$

$\qquad\qquad\qquad\qquad\qquad = \frac{10}{21}$

$\qquad$ Total fraction painted $= \frac{7}{21} + \frac{10}{21}$

$\qquad\qquad\qquad\qquad\qquad = \frac{17}{21}$

$\quad$ (d) $\frac{2}{3} = \frac{14}{21}$ $\frac{2}{7} = \frac{6}{21}$

$\qquad$ Toal fraction painted $= \frac{14}{21} + \frac{6}{21}$

$\qquad\qquad\qquad\qquad\qquad = \frac{20}{21}$

$\qquad$ Fraction unpainted $= \frac{21}{21} - \frac{20}{21}$

$\qquad\qquad\qquad\qquad\qquad = \frac{1}{21}$

Let's Learn 3.1

Ask Yourself

Rewrite 4 wholes as a mixed number. It is easier to subtract.

Let's Practise 3.1

Question 1

$\frac{3}{4} = \frac{9}{12}$ $\qquad$ $\frac{5}{6} = \frac{10}{12}$

$\frac{3}{4} + \frac{5}{6} = \frac{9}{12} + \frac{10}{12}$

$\qquad\quad = \frac{19}{12}$

$\qquad\quad = 1\frac{7}{12}$

Ariel and Celine bought $1\frac{7}{12}$ **kg** of strawberries in total.

Question 2

$\frac{1}{2} = \frac{5}{10}$ $\qquad$ $\frac{3}{5} = \frac{6}{10}$

Jug B $= \frac{1}{2} + \frac{3}{5}$

$\qquad = \frac{5}{10} + \frac{6}{10}$

$\qquad = \frac{11}{10}$

Total $= \frac{1}{2} + \frac{11}{10}$

$\qquad = \frac{5}{10} + \frac{11}{10}$

$\qquad = \frac{16}{10}$

$\qquad = 1\frac{6}{10}$

$\qquad = 1\frac{3}{5}$

There is a total of $1\frac{3}{5}$ ℓ of orange juice in both jars.

Question 3

Left $= 5 - \frac{7}{8}$

$\qquad = 4\frac{8}{8} - \frac{7}{8}$

$\qquad = 4\frac{1}{8}$

Clare had $4\frac{1}{8}$ **kg** of sugar left.

Question 4

Left $= 4 - \frac{7}{9}$

$\qquad = 3\frac{9}{9} - \frac{7}{9}$

$\qquad = 3\frac{2}{9}$

The rope is $3\frac{2}{9}$ **m** in the end.

Question 5

Gave $= \frac{1}{3} + \frac{4}{9}$

$\quad\quad = \frac{3}{9} + \frac{4}{9}$

$\quad\quad = \frac{7}{9}$

Left $= 7 - \frac{7}{9}$

$\quad\quad = 6\frac{9}{9} - \frac{7}{9}$

$\quad\quad = 6\frac{2}{9}$

Sheila had **$6\frac{2}{9}$ kg** of cherries left.

Question 6

$\frac{5}{6} = \frac{10}{12} \quad\quad \frac{2}{3} = \frac{8}{12}$

Left $= \frac{5}{6} - \frac{1}{12}$

$\quad\quad = \frac{10}{12} - \frac{1}{12}$

$\quad\quad = \frac{9}{12}$

End $= \frac{9}{12} + \frac{2}{3}$

$\quad\quad = \frac{9}{12} + \frac{8}{12}$

$\quad\quad = \frac{17}{12}$

$\quad\quad = 1\frac{5}{12}$

There was **$1\frac{5}{12}$ ℓ** of water in the container in the end.

Let's Get Started 3.2

2.
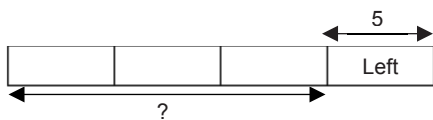
3.
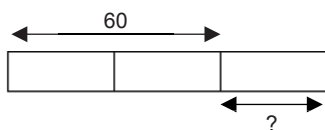
Let's Learn 3.2

Ask Yourself

Convert to equivalent fractions with the same denominator by finding the first common multiple.

Think Further

We will not be able to solve the problem sum as there is insufficient information given. To solve the sum, we will need to know the amount of money Karen's brother has.

Let's Practise 3.2

Question 1

$\frac{1}{5} = \frac{7}{35}$ (Friends) $\quad\quad \frac{3}{7} = \frac{15}{35}$ (Neighbours)

$7u = 56$

$1u = 56 \div 7$

$\quad = 8$

$15u = 15 \times 8$

$\quad\quad = 120$

120 cookies were given to the neighbours.

Question 2

$\frac{1}{3} = \frac{3}{9}$ (Asia) $\quad\quad \frac{4}{9}$ (Europe)

$\frac{3}{9} + \frac{4}{9} = \frac{7}{9}$ (Asia + Europe)

$1 - \frac{7}{9} = \frac{2}{9}$ (America)

$7u = 84$

$1u = 84 \div 7$

$\quad = 12$

$2u = 2 \times 12$

$\quad = 24$

24 stamps are from America.

Question 3

(a) $\frac{3}{4} = \frac{21}{28}$ (Participants) $\quad\quad \frac{1}{7} = \frac{4}{28}$ (Non-participants)

$\frac{21}{28} + \frac{4}{28} = \frac{25}{28}$ (Participants + Non-participants)

$1 - \frac{25}{28} = \frac{3}{28}$ (Organisers)

$3u = 300$

$1u = 300 \div 3$

$\quad = 100$

$28u = 28 \times 100$

$\quad\quad = 2800$

There were **2800 people** at the triathlon.

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Question 3 (Cont.)

(b) $1 - \frac{3}{4} = \frac{1}{4}$ (Female)

    $4u = 300$

    $1u = 300 \div 4$

      $= 75$

    There were **75 female organisers**.

Question 4

$\frac{3}{8} = \frac{15}{40}$ (Children) $\frac{2}{5} = \frac{16}{40}$ (Colleagues)

$\frac{16}{40} - \frac{15}{40} = \frac{1}{40}$ (Difference between children and colleagues)

  $1u = 80$

$40u = 40 \times 80$

    $= 3200$

Mrs Jones made **3200 mℓ** of lemonade.

Question 5

(a) $\frac{2}{3} = \frac{8}{12}$ (Cushion) $\frac{1}{4} = \frac{3}{12}$ (Patchwork)

    Total fraction used $= \frac{2}{3} + \frac{1}{4}$

               $= \frac{8}{12} + \frac{3}{12}$

               $= \frac{11}{12}$

    Fraction left $= 1 - \frac{11}{12}$

              $= \frac{1}{12}$

     $1u = 2$

  $12u = 12 \times 2$

      $= 24$

    Selina bought **24 m** of fabric.

(b) $4u = 24$

    $1u = 24 \div 4$

      $= 6$

    Since Selina was left with 2 m of the fabric,

    amount she would need $= 6 \text{ m} - 2 \text{ m}$

                      $= 4 \text{ m}.$

    Selina would need to buy another **4 m** of the fabric.

Question 6

(a) $\frac{1}{2} = \frac{5}{10}$ (Nuts) $\frac{1}{5} = \frac{2}{10}$ (Fruits)

    Fruits + Nuts $= \frac{1}{5} + \frac{1}{2}$

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

              $= \frac{7}{10}$

    Original $= 1 - \frac{7}{10}$

           $= \frac{3}{10}$

   $3u = 270$

   $1u = 270 \div 3$

     $= 90$

  $10u = 10 \times 90$

      $= 900$

    There were **900 muffins**.

(b) $1 - \frac{5}{6} = \frac{1}{6}$ (Muffins left)

    $6u = 900$

    $1u = 900 \div 6$

      $= 150$

    There were **150 muffins** left.

Question 1

(a) Total muffins sold $= 15 + 20 + 25$

                 $= 60$

    Fraction $= \frac{15}{60}$

          $= \frac{1}{4}$

(b) $3u = 15$

    $1u = 15 \div 3$

      $= 5$

    $2u = 2 \times 5$

      $= 10$

    10 choc muffins $\rightarrow$ \$18

     1 choc muffin $\rightarrow$ \$1.80

    Each chocolate muffin cost **\$1.80**.

Question 2

<u>End</u>

<u>At first</u>

$7u = 563 - 80$

$\quad = 483$

$1u = 483 \div 7$

$\quad = 69$

$3u = 3 \times 69$

$\quad = 207$

$3u + 80 = 207 + 80$

$\qquad\quad = 287$

Michelle had **287 green beads** at first.

Question 3

3 days $\rightarrow \frac{1}{5}$ T used

9 days $\rightarrow \frac{3}{5}$ T used

$1 - \frac{3}{5} = \frac{2}{5}$ left

$\frac{2}{5}$ T $= 36$

$\frac{1}{5}$ T $= 36 \div 2$

$\quad = 18$

$\frac{5}{5}$ T $= 5 \times 18$

$\quad = 90$

Gaby had **90 kg** of sugar in the beginning.

Question 4

$\frac{1}{4} = \frac{3}{12}$ (Dress) $\qquad \frac{1}{6} = \frac{2}{12}$ (Jeans)

Fraction spent $= \frac{1}{4} + \frac{1}{6}$

$\qquad\qquad\quad = \frac{3}{12} + \frac{2}{12}$

$\qquad\qquad\quad = \frac{5}{12}$

Fraction of money left $= 1 - \frac{5}{12}$

$\qquad\qquad\qquad\qquad = \frac{7}{12}$

$7u = 637 + 63$

$\quad = 700$

Question 4 (Cont.)

$1u = 700 \div 7$

$\quad = 100$

$2u = 2 \times 100$

$\quad = 200$

The pair of jeans cost **$200**.

Question 5

<u>End</u>

<u>At first</u>

$7u = 77 - 14$

$\quad = 63$

$1u = 63 \div 7$

$\quad = 9$

Difference $= 14 - 1u$

$\qquad\qquad = 14 - 9$

$\qquad\qquad = 5$

There were **5 more** motorcycles than cars at first.

Question 6

$S = 1u$

$D = 1u$

$C = 3u$

$3u = 39$

$1u = 39 \div 3$

$\quad = 13$

$5u = 5 \times 13$

$\quad = 65$

There were **65 animals** on the farm altogether.

Question 7

Savings $= 1 - \frac{1}{4} - \frac{1}{12} - \frac{1}{3}$

$\qquad\quad = 1 - \frac{3}{12} - \frac{1}{12} - \frac{4}{12}$

$\qquad\quad = \frac{4}{12}$

$\qquad\quad = \frac{1}{3}$

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Question 7 (Cont.)

$\frac{1}{3}$ Earnings = 2240

Earnings = 3 × 2240

$\qquad$ = 6720

$\frac{1}{4}$ Earnings = $\frac{1}{4}$ × 6720

$\qquad$ = 1680

Jason gave his mother **$1680**.

Question 8

Kalisa's share = $1 - \frac{1}{4} - \frac{1}{12}$

$\qquad = 1 - \frac{3}{12} - \frac{1}{12}$

$\qquad = \frac{8}{12}$

$\qquad = \frac{2}{3}$

Difference between K and A = $\frac{2}{3} - \frac{1}{12}$

$\qquad = \frac{8}{12} - \frac{1}{12}$

$\qquad = \frac{7}{12}$

$\frac{7}{12}$ Total = 602

$\frac{1}{12}$ Total = 602 ÷ 7

$\qquad = 86$

Total = 12 × 86

$\qquad = 1032$

They shared **$1032**.

Question 9

5u = 53 − 8

$\quad = 45$

1u = 45 ÷ 5

$\quad = 9$

1u + 8 = 9 + 8

$\qquad = 17$

Hamid's book cost **$17**.

Question 10

9u = 332 − 125

$\quad = 207$

1u = 207 ÷ 9

$\quad = 23$

5u = 5 × 23

$\quad = 115$

Mr Muthu had **115 yellow baskets** for sale at first.

Question 11

$\frac{4}{5}$ × 150 = 120

Joash gave 120 blue erasers to his friends.

Difference = 120 − 80

$\qquad = 40$

Joash gave **40 more** erasers to his friends than his neighbour.

Question 12

Aminah = $1 - \frac{5}{8}$

$\qquad = \frac{3}{8}$

$\frac{3}{8}$ × 168 = 63

Sharon gave **63 seashells** to Aminah.

Question 13

Read = $\frac{1}{4} + \frac{1}{8}$

$\qquad = \frac{2}{8} + \frac{1}{8}$

$\qquad = \frac{3}{8}$

Unread = $1 - \frac{3}{8}$

$\qquad = \frac{5}{8}$

$\frac{5}{8}$ Total = 95

$\frac{1}{8}$ Total = 95 ÷ 5

$\qquad = 19$

Question 13 (Cont.)

Total = 8 × 19

     = 152

There were **152 pages** in the storybook.

Question 14

Difference $= \frac{2}{3} - \frac{1}{4}$

         $= \frac{8}{12} - \frac{3}{12}$

         $= \frac{5}{12}$

$\frac{5}{12}$ Salary = 890

$\frac{1}{12}$ Salary = 890 ÷ 5

        = 178

Salary = 178 × 12

       = 2136

Aslam's salary was **$2136**.

Question 15

Fraction of money spent $= \frac{1}{4} + \frac{5}{12}$

                 $= \frac{3}{12} + \frac{5}{12}$

                 $= \frac{8}{12}$

                 $= \frac{2}{3}$

Fraction of money left $= 1 - \frac{2}{3}$

              $= \frac{1}{3}$

Amount of money left = 10 − 2

              = 8

$\frac{1}{3}$ Total = 8

 Total = 3 × 8

       = 24

Lisa had **$24** at first.

Question 16

<u>End</u>

L	2u	2u	2u
C	2u		

<u>At first</u>

L	2u	2u	2u	150	
C	2u	1u			510

Question 16 (Cont.)

9u = 510 − 150

   = 360

1u = 360 ÷ 9

   = 40

3u = 3 × 40

   =120

120 + 150 = 270

There were **270 more** boxes of love letters than cookies at first.

Chapter **4 Decimals**

Let's Get Started 4.1

1. (a) **6.58**   (b) **78.9** (c) **0.079**

2. (a) **0.7**   (b) **0.6** (c) **0.12**

3. **tenths**

4. **hundredths**

5. **0.5**

6. $\frac{1}{2} + \frac{3}{10}$ $= \frac{5}{10} + \frac{3}{10}$

              $= \frac{8}{10}$

              = 0.8

7. (a) **8.3**   (b) **16.5** (c) **18.3** (d) **25.0**

8. (a) **5.26** (b) **25.65** (c) **46.74** (d) **65.28**

9. **0.325, 0.65, 0.8, 0.91**

10. (a) **7.63, 8.03**   (b) **0.365, 0.385**
     (c) **6.399, 6.369**   (d) **2.114, 0.114**

Let's Practise 4.1

Question 1

2.65 ℓ

Question 2

$15.49

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Question 3

40.0 kg

Question 4

$3.26 \approx 3$

$2.3 \approx 2$

Perimeter = 3 m + 3 m + 2 m + 2 m

= **10 m**

Question 5

(a) **5.8 cm**　　(b) **2.9 cm**　　(c) **4.8 cm**

Question 6

Greatest total length = 32.44 m

Greatest possible length of the longer ribbon

= 32.44 m – 5.35 m

= **27.09 m**

Answers to Unit 4.2 – Addition and Subtraction of Decimals

Let's Get Started 4.2

(a) **8.9**　　(b) **2.49**　　(c) **7.2**　　(d) **0.9**　　(e) **1.29**

(f) **123.47** (g) **2.1**　　(h) **3.33**　(i) **0.05**　(j) **8.8**

Let's Practise 4.2

Question 1

15.70 + 2.80 = 18.50

The book and market cost $18.50.

20 – 18.50 = 1.50

Henry would receive **$1.50** change.

Question 2

25.80 + 28.30 = 54.10

They had a total of $54.10.

64 – 54.10 = 9.90

They needed **$9.90** more.

Question 3

3.50 + 2.10 + 2.60 = 8.20

Robin spent a total of $8.20.

18 – 8.20 = 9.80

She would have **$9.80** left.

Question 4

55.50 − 19.75 = 35.75

Both items cost $35.75.

35.75 – 25.65 = 10.10

The pencil case cost **$10.10**.

Question 5

60 – 45.95 = 14.05

Natalie had $14.05 after buying a bag.

14.05 + 20 = 34.05

Natalie saved a total of **$34.05**.

Question 6

389.75 + 150.80 + 45.30 = 585.85

Chester spent a total of $585.85.

750 – 585.85 = 164.15

Chester had **$164.15** left.

Answers to Unit 4.3 – Multiplication and Division of Decimals

Let's Get Started 4.3

1.　(a) **1.8**　　(b) **3.25**　(c) **13.6**　(d) **28.56**

2.　(a) **0.23**　(b) **1.67**　(c) **1.3**　(d) **1.225**

3.　(a) **2.5**　　(b) **7.1**　　(c) **4.7**　　(d) **12.5**
　　(e) **27.5**　(f) **22.6**

4.　(a) **0.5**　　(b) **1.1**　　(c) **0.6**　　(d) **3.1**
　　(e) **2.6**　　(f) **1.4**

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Let's Practise 4.3

Question 1

4.25 × 6 = 25.50

Chandra will have saved **$25.50**.

Question 2

5.35 × 4 = 21.40

Melissa paid **$21.40**.

Question 3

3.62 × 7 = 25.34

Mrs Lim bought **25.34 m** of carpet.

Question 4

65.30 × 5 = 326.50

He would receive **$326.50**.

Question 5

3.75 ÷ 3 = 1.25

Each packet contains **1.25 kg** of sugar.

Question 6

23.40 ÷ 9 = 2.60

Each hair clip cost **$2.60**.

Question 7

302.40 ÷ 7 = 43.20

His daily wage is **$43.20**.

Question 8

4.80 × 4 = 19.20

4 notebooks cost $19.20.

55 − 19.20 = 35.80

Terrence had $35.80 left after buying notebooks.

35.80 − 21 = 14.80

8 pencils cost $14.80.

14.80 ÷ 8 = 1.85

Each pencil cost **$1.85**.

Question 1

P	7.46		
T	7.46	3.7	} ?
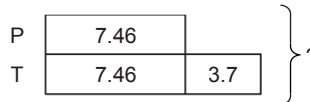
7.46 + 3.7 = 11.16

The tank can hold 11.16 ℓ of water.

11.16 + 7.46 = 18.62

≈ 18.6

Both containers can hold **18.6 ℓ** of water.

Question 2

F	1u	1u	
S	1u		} 0.48
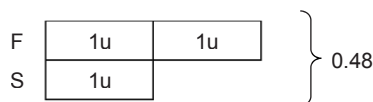
3u = 0.48

1u = 0.48 ÷ 3

= 0.16

2u = 2 × 0.16

= 0.32

The mass of the packet of flour is **0.32 kg**.

Question 3

		10.50		
C	1u			
T	1u	1u	1u	1u
K	1u	1u		
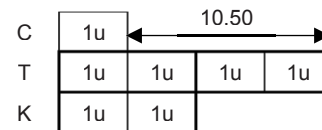
3u = 10.50

1u = 10.50 ÷ 3

= 3.50

7u = 7 × 3.50

= 24.50

The three children shared **$24.50**.

Question 4

B	1u	1u	1u	1u
A	1u	1u		
C	1u	0.24		
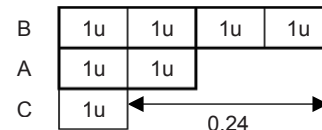
3u = 0.24

1u = 0.24 ÷ 3

= 0.08

7u = 7 × 0.08

= 0.56

The mass of the packet of seeds was **0.56 kg**.

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Question 5

Fraction of amount of sauce left $= 1 - \frac{1}{4} - \frac{1}{2}$

$$= \frac{4}{4} - \frac{1}{4} - \frac{2}{4}$$

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

4u = 10.8

1u = 10.8 ÷ 4

   = 2.7

The amount of sauce left was **2.7 ℓ**.

Question 6

Fraction of rice left $= 1 - \frac{1}{4} - \frac{1}{8}$

$$= \frac{8}{8} - \frac{2}{8} - \frac{1}{8}$$

$$= \frac{5}{8}$$

5u = 4.05

1u = 4.05 ÷ 5

   = 0.81

8u = 8 × 0.81

   = 6.48

He had **6.48 kg** of rice at first.

Question 7

$\frac{1}{2} = \frac{3}{6}$ (computer game) $\frac{1}{3} = \frac{2}{6}$ (board game)

1u = 41.30

6u = 6 × 41.30

   = 247.80

Caleb had **$247.80** at first.

Question 8

$\frac{2}{5} = \frac{6}{15}$ (food) $\frac{1}{3} = \frac{5}{15}$ (transport)

6u = 12.90

1u = 12.90 ÷ 6

   = 2.15

5u = 5 × 2.15

   = 10.75

Imran spent **$10.75** on transport.

Question 9

7 muffins and 7 pies = 22.30 + 19

                  = 41.30

1 muffin and 1 pie = 41.30 ÷ 7

                  = 5.90

The total cost of 1 muffin and 1 pie is **$5.90.**

Question 10

2C = 2 × 3u

   = 6u

3S = 3 × 1u

   = 3u

2C + 3S = 6u + 3u

        = 9u

9u = 1.8

1u = 1.8 ÷ 9

   = 0.2

The length of each silk ribbon is **0.2 m.**

Question 11

Items	Quantity of items	×	Value of each unit ($)	Total value ($)
E	4u	×	1.5	6u
F	1u	×	1	1u
Total	5u			7u

7u = 14

1u = 14 ÷ 7

   = 2

6u = 6 × 2

   = 12

Gillian paid **$12** for the egg tarts.

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Question 12

At first

End
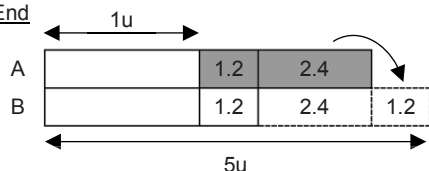
$4u = 1.2 + 2.4 + 1.2$

$\quad = 4.8$

$1u = 4.8 \div 4$

$\quad = 1.2$

$5u = 5 \times 1.2$

$\quad = 6$

There was **6 ℓ** of water in Tank B in the end.

Question 13

$3.60 \times 5 = 18$

5 donuts cost $18.

$50 - 18 = 32$

Kim Seng had $32 left after buying the donuts.

$32 - 10 = 22$

$22 \div 4 = 5.50$

Each packet of chips cost **$5.50**.

Question 14

Items	Quantity of items	×	Value of each unit (m)	Total value (m)
S	5u	×	0.2	1u
L	1u	×	2.0	2u
Total	6u			3u

$3u = 12$

$1u = 12 \div 3$

$\quad = 4$

$6u = 4 \times 6$

$\quad = 24$

Joash used **24 tubes** in all.

Question 15

$1S + 4N = 33.3$

$1S + 1N = 15.75$

$3N = 33.3 - 15.75$

$\quad = 17.55$

$1N = 17.55 \div 3$

$\quad = 5.85$

One notebook cost **$5.85**.

Question 16

End
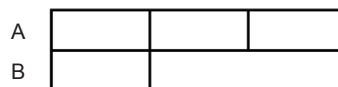
At first
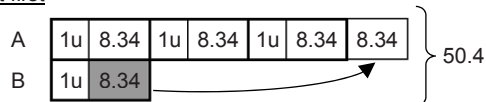
$4 \times 8.34 = 33.36$

$4u = 50.4 - 33.36$

$\quad = 17.04$

$1u = 17.04 \div 4$

$\quad = 4.26$

The mass of Bag B was **4.26 kg** at first.

Question 17

Mass of 6 packets of figs $= 6 \times 0.35$ kg

$\quad\quad\quad\quad\quad\quad = 2.1$ kg

Mass of 6 packets of cranberries $= 4.35$ kg $- 2.1$ kg

$\quad\quad\quad\quad\quad\quad = 2.25$ kg

Mass of 1 packet of cranberries $= 2.25$ kg $\div 6$

$\quad\quad\quad\quad\quad\quad = 0.375$ kg

The mass of each packet of cranberries is **0.375 kg**.

Question 18

Rope B $= 4.68$ m $+ 2.95$ m

$\quad\quad\quad = 7.63$ m

Rope C $= 2 \times 7.63$ m

$\quad\quad\quad = 15.26$ m

Total length $= 2.95$ m $+ 7.63$ m $+ 15.26$ m

$\quad\quad\quad\quad\quad = 25.84$ m

$\quad\quad\quad\quad\quad \approx 25.8$ m

The total length of the three ropes is **25.8 m**.

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Question 19

3 pens = 3 × $2.05

      = $6.15

2 notebooks = 2 × $2.25

        = $4.50

Total cost = $6.15 + $4.50

      = $10.65

Change = $50 – $10.65

      = $39.35

Collin would receive **$39.35** change.

Question 20

Distance between 2 flag poles = 3.06 m ÷ 2

          = 1.53 m

Distance between the 1st and 6th pole = 5 × 1.53 m

          = 7.65 m

The distance between the 1st and 6th pole was **7.65 m**.

Chapter **5** **Graphs**

Let's Get Started 5.1

Table 1

(a) **4 Courageous**

(b) **4 Courageous and 4 Honesty**

(c) **158 pupils**

Table 2

(a) **13 girls**

(b) 57 girls + 75 boys = **132 pupils**

(c) 0 girls + 5 boys = **5 pupils**

Let's Practise 5.1

Question 1

(a) 123 + 212 + 112 + 178 = 625

    625 cups of sugar cane juice sold by all the stalls.

(b) 179 + 290 = 469

    Total amount collected by stalls A and B was **$469**.

Question 1 (Cont.)

(c) Stall A = 123 + 56

         = 179

    Stall B = 212 + 78

         = 290

    Stall C = 112 + 67

         = 179

    Stall D = 178 + 61

         = 239

    Stall A and Stall C sold the same total number of cups of drinks.

(d) 56 + 78 + 67 + 61 = 262

    All the shops sold a total of 262 cups of orange juice.

    262 × 1 = 262

    The total amount of money collected was **$262**.

Question 2

(a) 450 + 420 + 420 + 430 + 420 = 2140

    The total amount collected is **$2140**.

(b) Total amount (Max) = 450

    Total amount (Min) = 420

    Difference = 450 – 420

          = 30

    The greatest difference is **$30**.

(c) 420 ÷ 2 = 210

    210 plates of curry rice and duck noodles were sold.

(d) Number of plates of curry rice sold = 1u

    Number of plates of duck noodles sold = 2u

    Total plates sold = 3u

    3u = 210

    1u = 210 ÷ 3

        = 70

    70 plates of curry rice are sold on Wednesday.

Question 3

(a) 32 000 + 38 800 = 70 800

    Total amount collected on the weekend was **$70 800**.

Question 3 (Cont.)

(b) 750 + 600 + 2000 = 3350

There were 3350 people on Thursday.

3350 × 8 = 26 800

Total amount collected on Thursday was **$26 800**.

(c) 32 000 ÷ 8 = 4000

There were 4000 people on Saturday.

4000 – 2700 – 300 = 1000

1000 people watched Movie B on Saturday.

(d) Total people on Sunday = 38 800 ÷ 8

= 4850

Total people for Movie A and Movie B (Sun)

= 4850 – 3500

= 1350

Movie A (Sun) = 1u

Movie B (Sun) = 8u

9u = 1350

1u = 1350 ÷ 9

= 150

150 people watched Movie A on Sunday.

(e) Missing information from the table,

Movie B (Sun) = 8 × 150

= 1200

I would replace **Movie A.**

The number of people watching the movie has decreased to 150.

Accept all plausible reasons.

Question 4

(a) 140 + 250 + 10 = 400

QuickSpin washed a total of 400 kg of laundry.

400 × 5 = 2000

Total amount collected by QuickSpin is **$2000**.

(b)   1300 ÷ 5 = 260

Drydays washed a total of 260 kg of laundry.

260 – 150 – 100 = 10

Total mass of socks washed by Drydays is **10 kg**.

(c) 900 ÷ 5 = 180

Evergreen washed a total of 180 kg of laundry.

Question 4 (Cont.)

180 – 30 = 150

Evergreen washed 150 kg of dresses and shirts.

Mass of dresses = 2u

Mass of shirts = 1u

3u = 150

1u = 150 ÷ 3

= 50

2u = 2 × 50

= 100

Mass of dresses washed is **100 kg**.

(d) Evergreen washed 50 kg of shirt.

Most shirts washed = 250

Least shirts washed = 50

250 – 50 = 200

The greatest difference in the mass is **200 kg**.

(e) **QuickSpin.**

The total mass of dresses, shirts and socks washed is the greatest.

Question 5

(a) Cost of an eraser = 30 ¢ + 20 ¢

= 50 ¢

For Edmund,

Amount spent on pencils = 6 × 30 ¢

= 180 ¢

= $1.80

Amount spent on erasers = 2 × 50 ¢

= 100 ¢

= $1

Amount spent on files = $23.80 – $1.80 – $1

= $21

21 ÷ 7 = 3

A file cost **$3**.

(b) Amount David spent = 5 × 30 ¢ + 4 × 50 ¢ + 10 × $3

= 150 ¢ + 200 ¢ + $30

= $1.50 + $2 + $30

= **$33.50**

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Question 5 (Cont.)

(c)   Amount spent on pencils = 8 × 30 ¢
                              = 240 ¢
                              = $2.40

Amount spent on erasers = 50 ¢
                              = $0.50

Amount spent on files = $17.90 – $2.40 – $0.50
                              = $15

15 ÷ 3 = 5

Cathy bought **5 files**.

(d)   Number of items Cathy bought = 8 + 1 + 5
                              = 14

Number of files (Brian) = 14 – 11 – 2
                              = 1

Amount Brian spent = 11 × 30 ¢ + 2 × 50 ¢ + 1 × $3
                      = 330 ¢ + 100 ¢ + $3
                      = $3.30 + $1 + $3
                      = **$7.30**

Let's Get Started 5.2

Month	January	March	May	July
Amount saved ($)	10	45	65	40

Let's Practise 5.2

Question 1

(a)   **9 am**   (b)   **6 am**

(c)   **1300 cars**   (d)   **7 am to 8 am**

(e)   **9 am to 10 am**

Question 2

(a)   **180 toys**

(b)   **May**

(c)   January to February → increase by 30
      February to March → increase by 30
      April to May → increase by 70
      January to February and **February to March** saw the same amount of increase.

Question 2 (Cont.)

(d)   100 + 130 + 160 + 130 + 200 + 180 = 900
      900 toys were sold from January to June.

(e)   March to April → decrease by 30
      May to June → decrease by 20
      March to April saw the greatest decrease in the sale.

Question 3

(a)   **14 ºC**   (b)   **20 ºC**   (c)   **7:30 am**

(d)   When temperature = 14 °C, time is 7:40 am
      When temperature = 20 °C, time is 8:10 am
      Elapsed time = 10 + 20
                      = 30
      30 minutes had passed.

(e)   Temperature at 7:20 am = 8 ºC
      Temperature at 8:20 am = 22 ºC
      22 – 8 = 14
      The change in temperature is **14 ºC**.

Question 4

(a)   **260 litres**

(b)   Amount of water at 10 am = 460 litres
      Amount of water at 9 am = 220 litres
      460 – 220 = 240
      240 litres of water were poured into the tank.

(c)   **12:30 pm**

(d)   **10:00 am**

(e)   7:00 am to 8:00 am → decrease by 20
      8:00 am to 9:00 am → decrease by 40
      10:00 am to 11:00 am → decrease by 140
      11:00 am to 12 noon → decrease by 80
      12 noon to 1:00 pm → decrease by 120
      The water decreased the most from **10:00 am to 11:00 am.**

Question 5

(a) Increase from 2018 to 2019 = 1200 – 1100

$\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad$ = 100

$\quad$ Increase from 2019 to 2020 = 5 × 100

$\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad$ = 500

$\quad$ 1200 + 500 = 1700

$\quad$ There are **1700 private houses** sold in 2020.

(b) Number of private houses sold in 2021

$\quad$ = 2 × number of private houses sold in 2022

$\quad$ = 2 × 1000

$\quad$ = 2000

$\quad$ There are **2000 private houses** sold in 2021.

(c) **Years 2019 and 2023**

(d) 1700 + 2000 + 1000 + 1200 = 5900

$\quad$ There are **5900 houses** sold from 2020 to 2023.

Question 6

(a) **6 seconds**

(b) **8 metres**

(c) **8 seconds**

(d) 14 – 4 = 10

$\quad$ The time difference is **10 seconds**.

(e) Ball is at 0 m → 8 seconds

$\quad$ Ball increases height to 8 m → 16 seconds

$\quad$ 16 – 8 = 8

$\quad$ It took **8 seconds**.

(f) 10 – 4 = 6

$\quad$ The ball travelled **6 metres**.

Let's Get Started 5.3
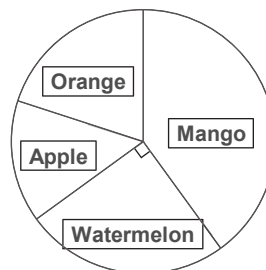
Let's Learn 5.3

Think Further

Red = 44 + 24

$\quad$ = 68

68 > 60, so the most popular colour would be red.

The new pie chart would represent 184 students with the largest part representing students who like Red. The other parts arranged from the largest to the smallest would be Blue, Pink, Green.

Let's Practise 5.3

Question 1

(a) $\frac{1}{4}$ Total = 75

$\quad$ $\frac{4}{4}$ Total = 4 × 75

$\quad\quad\quad\quad$ = 300

$\quad$ There are **300 students** altogether.

(b) L + M + N = 75 + 35 + 70

$\quad\quad\quad\quad\quad$ = 180

$\quad$ C = 300 – 180

$\quad\quad$ = 120

$\quad$ **120 students** like to eat chicken rice.

(c) 1u = 35

$\quad$ 2u = 2 × 35

$\quad\quad$ = 70

$\quad$ There were twice as many students who like **Nasi Lemak** as students who like Mee Siam.

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Question 2

(a)   72 + 36 + 28 + 84 = 220
      There are **220 children**.

(b)   3u = 84
      1u = 84 ÷ 3
         = 28
      There are 3 times as many children who like Basketball as children who like **Tennis.**

(c)   S + T = 36 + 28
            = 64
      Swimming = 2 × 64
               = 128
      128 children like Swimming.

Question 3

(a) $\frac{1}{4}$ of the coloured balls are orange.

(b)   Orange = $\frac{1}{4}$
      1u = 320
      4u = 4 × 320
         = 1280
      There are **1280 coloured balls** in the box.

(c)   Orange = Green = $\frac{1}{4}$ = $\frac{5}{20}$
      Red = Yellow = $\frac{1}{10}$ = $\frac{2}{20}$
      White = $\frac{20}{20} - \frac{5}{20} - \frac{5}{20} - \frac{2}{20} - \frac{2}{20}$
            = $\frac{6}{20}$
            = $\frac{3}{10}$

      $\frac{3}{10}$ of the coloured balls are white.

(d)   10u = 1280
       1u = 1280 ÷ 10
          = 128
       3u = 3 × 128
          = 384
      384 coloured balls are white.

Question 4

(a)   Hazelnut = $\frac{1}{4}$
      4u = 160
      1u = 160 ÷ 4
         = 40
      40 hazelnut cupcakes were sold.

(b)   B + H + V + S = 20 + 40 + 15 + 25
                    = 100
      C = 160 – 100
        = 60
      60 chocolate cupcakes were sold.

(c)   B + C = 20 + 60
            = 80
      $\frac{B + C}{Total}$ = $\frac{80}{160}$
            = $\frac{1}{2}$

      $\frac{1}{2}$ of the cupcakes sold were blueberry and chocolate cupcakes.

Question 5

(a)   1u = 150
      4u = 4 × 150
         = 600
      600 items were sold.

(b)   5u = 600
      1u = 600 ÷ 5
         = 120
      120 notebooks were sold.

(c)   Erasers = $\frac{1}{4}$
              = $\frac{5}{20}$
      Notebooks = $\frac{1}{5}$
                = $\frac{4}{20}$
      Erasers and Notebooks = $\frac{5}{20} + \frac{4}{20}$
                            = $\frac{9}{20}$
      Pens and Files = $\frac{20}{20} - \frac{9}{20}$
                     = $\frac{11}{20}$

      $\frac{11}{20}$ **of the items** sold were pens and files.

Question 1

(a) **June**

(b) July savings = 30

October savings = 45

45 − 30 = 15

Difference in the amount of money saved was **$15**.

Question 2

(a) Dec to Jan → decrease by 100

Jan to Feb → decrease by 50

Feb to Mar → decrease by 50

Mar to Apr → decrease by 50

The sale of pots decreased the most from **Dec to Jan**.

(b)

Month	Sale	Amount collected ($)
Feb	150	150 × 29 = 4350
Mar	100	100 × 29 = 2900
Apr	50	50 × 29 = 1450

4350 + 2900 + 1450 = 8700

The total amount collected is **$8700**.

Question 3

(a) Difference = 700 − 325

= 375

Ahmad spent **$375** more than Bernard.

(b) 450 + 600 = 1050

They spent a total of **$1050**.

Question 4

(a) $\frac{1}{2} - \frac{1}{6} = \frac{3}{6} - \frac{1}{6}$

$= \frac{2}{6}$

$= \frac{1}{3}$

$\frac{1}{3}$ of the cakes are cheesecakes.

(b) 1u = 12

3u = 3 × 12

= 36

There are **36 cakes** altogether in the cake shop.

Question 4 (Cont.)

(c) $\frac{1}{2} - \frac{1}{4} = \frac{2}{4} - \frac{1}{4}$

$= \frac{1}{4}$

$\frac{1}{4}$ of the cakes are red velvet cakes.

4u = 36

1u = 36 ÷ 4

= 9

There are **9 red velvet cakes**.

Question 5

159 + 29 + 36 = 224

224 children read at least 2 books in a week.

Question 6

(a)

Class	Mass of newspapers collected (kg)
4A	266
4B	224
4C	238
Total	728

(b) 728 ÷ 7 = 104

There were **104 children** altogether in the 3 classes.

Chapter **6** **Area and Perimeter**

Let's Practise 6.1

Question 1

(a) Area of Square A = 9 cm × 9 cm

= **81 cm²**

Perimeter of Square A = 4 × 9 cm

= **36 cm**

(b) Area of Rectangle B = 8 m × 4 m

= **32 m²**

Perimeter of Rectangle B = 8 m + 4 m + 8 m + 4 m

= **24 m**

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Question 1 (Cont.)

(c)   Area of Rectangle C = 17 m × 9 m

$$= \textbf{153 m}^2$$

Perimeter of Rectangle C = 17 m + 9 m + 17 m + 9 m

$$= \textbf{52 m}$$

Question 2

(a)   Area of Square A = 6 cm × 6 cm

$$= \textbf{36 cm}^2$$

Perimeter of Square A = 4 × 6 cm

$$= \textbf{24 cm}$$

(b)   Area of Rectangle B = 11 cm × 2 cm

$$= \textbf{22 cm}^2$$

Perimeter of Rectangle B

= 11 cm + 2 cm + 11 cm + 2 cm

= **26 cm**

Question 3

(a)   Area of the not covered by pavement = 14 m × 14 m

$$= \textbf{196 m}^2$$

(b)   Perimeter of pavement

= 16 m + 16 m + 2 m + 14 m + 14 m + 2 m

= **64 m**

Question 4

(a)   2 × length of field = 20 m + 20 m

$$= 40 \text{ m}$$

2 × breadth of field = 64 m – 40 m

$$= 24 \text{ m}$$

Breadth of field = 24 m ÷ 2

$$= \textbf{12 m}$$

(b)   Perimeter of garden = 64 m ÷ 2

$$= 32 \text{ m}$$

Length of garden = 32 m ÷ 4

$$= 8 \text{ m}$$

Area of garden = 8 m × 8 m

$$= \textbf{64 m}^2$$

Question 5

Length of CX = 1u

Length of CD = 2u

Distance walked by the ant = 2u + 2u + 1u

$$= 5u$$

5u = 37.5

1u = 37.5 ÷ 5

   = 7.5

2u = 2 × 7.5

   = 15

The length of the square paper is 15 cm.

(a)   15 × 15 = 225

The area of the paper is **225 cm²**.

(b)   4 × 15 = 60

The perimeter of the paper is **60 cm**.

Question 6

Let the length of each square be 1u.

Total length of wire = 1u + 3u + 1u + 3u

$$= 8u$$

8u = 96

1u = 96 ÷ 8

   = 12

(a)   Length of line AD is **12 cm**.

(b)   3u = 3 × 12

   = 36

36 × 12 = 432

The area of Rectangle ABCD is **432 cm²**.

Let's Practise 6.2

Question 1

(a)   7 cm × 7 cm = 49 cm²

Length of Square A = **7 cm**

Perimeter of Square A = 4 × 7 cm

$$= \textbf{28 cm}$$

Question 1 (Cont.)

(b)   Length of Rectangle B = 84 m^2 ÷ 8 m

$$= \textbf{10.5 m}$$

Perimeter of Rectangle B = (10.5 m × 2) + (8 m × 2)

$$= \textbf{37 m}$$

(c)   5 cm × 5 cm = 25 cm^2

Length of Square C = **5 cm**

Perimeter of Square C = 4 × 5 cm

$$= \textbf{20 cm}$$

Question 2

(a)   2 × breadth = 2 × 14 cm

$$= 28 \text{ cm}$$

2 × length = 78 cm – 28 cm

$$= 50 \text{ cm}$$

Length of Rectangle D = 50 cm ÷ 2

$$= \textbf{25 cm}$$

Area of Rectangle D = 25 cm × 14 cm

$$= \textbf{350 cm}^2$$

(b)   Length of Square E = 24 cm ÷ 4

$$= \textbf{6 cm}$$

Area of Square E = 6 cm × 6 cm

$$= \textbf{36 cm}^2$$

(c)   2 × breadth = 2 × 17 cm

$$= 34 \text{ cm}$$

2 × Length = 92 cm – 34 cm

$$= 58 \text{ cm}$$

Length of Rectangle F = 58 cm ÷ 2

$$= \textbf{29 cm}$$

Area of Rectangle F = 29 cm × 17 cm

$$= \textbf{493 cm}^2$$

Question 3

Length of wire = 80 cm + 60 cm + 80 cm + 60 cm

$$= 280 \text{ cm}$$

Length of each side of square = 280 cm ÷ 7

$$= \textbf{40 cm}$$

Question 4

Area of one square = 80 cm^2 ÷ 5
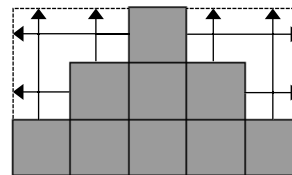
$$= 16 \text{ cm}^2$$

Length of each square = 4 cm
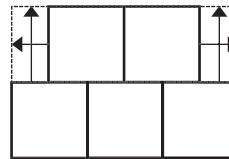
12 + 12 + 8 + 8 = 40

The perimeter of the figure is **40 cm**.

Question 5

Area of each identical squares = 81 cm^2 ÷ 9

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

Length of each identical square = 3 cm

15 + 15 + 9 + 9 = 48

The perimeter of Figure B is **48 cm**.

Question 6

Area of Square A = 2 cm × 2 cm

$$= 4 \text{ cm}^2$$

Area of Square B = 4 × 4 cm^2

$$= 16 \text{ cm}^2$$

Length of Square B = 4 cm

Area of Square C = 9 × 4 cm^2

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

Length of Square C = 6 cm

Perimeter of Square A = 4 × 2 cm

$$= 8 \text{ cm}$$

Perimeter of Square B = 4 × 4 cm

$$= 16 \text{ cm}$$

Perimeter of Square C = 4 × 6 cm

$$= 24 \text{ cm}$$

8 + 16 + 24 = 48

The length of the metal wire is **48 cm**.

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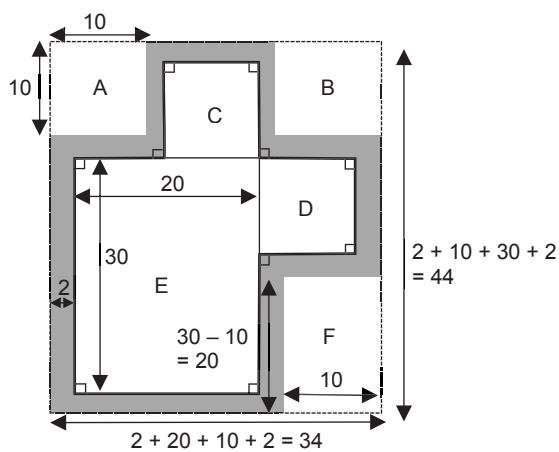
Let's Practise 6.3

Question 1

Area of Square A = Area of Square B
                 = Area of Square C
                 = Area of Square D
                 = 10 m × 10 m
                 = 100 m^2
Area of Rectangle E = 30 m × 20 m
                   = 600 m^2

Area of Rectangle F = 20 m × 10 m
                   = 200 m^2
Area of the whole figure (dotted rectangle) = 44 m × 34 m
                   = 1496 m^2
1496 – 100 – 100 – 100 – 100 – 600 – 200 = 296
Area of the path is **296 m^2.**

Question 2
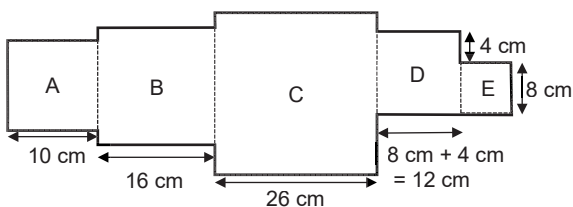
(a) Area of Square A = 10 cm × 10 cm
                     = 100 cm^2
Area of Square B = 16 cm × 16 cm
                = 256 cm^2
Area of Square C = 26 cm × 26 cm
                = 676 cm^2

Question 2 (Cont.)

Area of Square D = 12 cm × 12 cm
                = 144 cm^2
Area of Square E = 8 cm × 8 cm
                = 64 cm^2
Total area of figure
= 100 cm^2 + 256 cm^2 + 676 cm^2 + 144 cm^2 + 64 cm^2
= **1240 cm^2**

(b) Length of figure
    = 10 cm + 16 cm + 26 cm + 12 cm + 8 cm
    = 72 cm
    Breadth of figure = 26 cm

    72 + 26 + 72 + 26 = 196
    The perimeter of the figure is **196 cm**.

Question 3

Area of land used for strawberries = 18 m × 9 m
                                    = 162 m^2
Area of land used for herbs = 5 m × 5 m
                            = 25 m^2
Total area of land used = 162 m^2 + 25 m^2
                        = 187 m^2
Area of plot of land = 28 m × 25 m
                      = 700 m^2
Area of plot of land still not used = 700 m^2 – 187 m^2
                                    = **513 m^2**

Question 4

Area of 1 rectangle = 600 cm^2 ÷ 8
                    = 75 cm^2
From the figure, we can tell that the length of rectangle is 3 times length of its breadth.
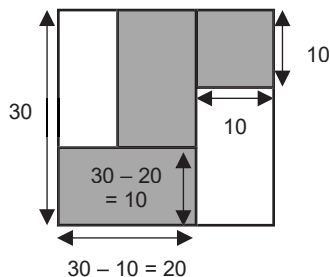Using guess and check and the factors of 75 to find the length and breadth of the rectangle,

Area of rectangle	Length	Breadth	Check
75 cm^2	75	1	✗
75 cm^2	25	3	✗
75 cm^2	15	5	✓

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Question 4 (Cont.)

Length of each rectangle = 15 cm

Breadth of each rectangle = 5 cm

Length of figure = 6 × 5 cm

= 30 cm

Breadth of figure = 5 cm + 15 cm

= 20 cm

Perimeter of figure = 30 cm + 30 cm + 20 cm + 20 cm

= 100 cm

Question 5

Area of one of the rectangles = 20 m × 10 m

= 200 m²

Question 6

Area of paper before it was cut = 10 cm × 6 cm

= 60 cm²

Area of 4 squares cut from the corners = 4 × 2 cm × 2 cm

= 16 cm²

60 – 16 – 9 = 35

Area of remaining piece of paper is **35 cm²**.

Question 7

Using guess-and-check and the factors of 72 to find the length and breadth of the pond,

Area of pond	Length	Breadth	Check
72 cm²	36	2	✘
72 cm²	18	4	✘
72 cm²	12	6	✔

Length of pond is 12 m and its breadth is 6 m.

Length of park = 2 m + 12 m + 10 m

= 24 m

Question 7 (Cont.)

Breadth of park = 2 m + 6 m + 2 m

= 10 m

Area of park = 24 m × 10 m

= 240 m²

240 – 72 = 168

The area not covered by the pond is **168 m²**.

Question 8

Using guess-and-check and the factors of 63 to find the length and breadth of the park.

Area	Length	Breadth	Difference	Check
63 m²	63	1	62	✘
63 m²	21	3	18	✘
63 m²	9	7	2	✔

Length of park is 9 m and its width is 7 m.

Length of park with pavement = 9 m + 2 m + 2 m

= 13 m

Breadth of park with pavement = 7 m + 2 m + 2 m

= 11 m

Area of park with pavement = 13 m × 11 m

= 143 m²

Area of pavement = 143 m² – 63 m²

= 80 m²

Question 9

Area of shaded region = 3 shaded squares

3 squares = 48

1 square = 48 ÷ 3

= 16

Length of square A = 4 cm
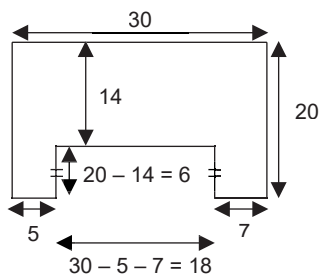
Length of square B = 2 × 4 cm

= 8 cm

Question 10

(a) 4 + 2 + 2 + 2 + 4 + 2 + 4 + 2 = 22

The marble travelled a distance of **22 cm**.

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Question 10 (Cont.)

(b) Area of 1st step = 14 cm × 2 cm

= 28 cm^2

Area of 2nd step = 10 cm × 2 cm

= 20 cm^2

Area of 3rd step = 6 cm × 2 cm

= 12 cm^2

Area of 4th step = 4 cm × 2 cm

= 8 cm^2

28 + 20 + 12 + 8 = 68

The area of the staircase is **68 cm^2**.

Question 11

30

14

20

20 – 14 = 6

5

7

30 – 5 – 7 = 18

Perimeter

= 30 cm + 20 cm + 30 cm + 20 cm + 6 cm + 6 cm

= 112 cm

Area of figure

= (30 cm × 20 cm) – (18 cm × 6 cm)

= 600 cm^2 – 108 cm^2

= 492 cm^2

Question 12

Perimeter of figure

= 30 cm + 25 cm + 30 cm + 25 cm

= 110 cm

30 ÷ 3 = 10

15 cm

25 cm

10 ÷ 2 = 5

25 –15 = 10

30 cm
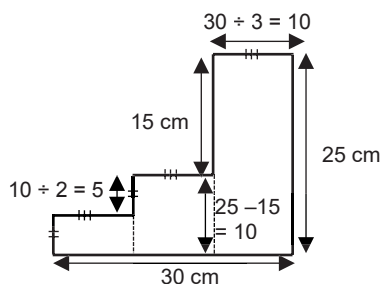
Area of the figure

= (25 cm × 10 cm) + (10 cm × 10 cm) + (10 cm × 5 cm)

= 400 cm^2

Question 13

3 × 3 = 9

Length of square is 3 cm.

Length of rectangle = 4 × 3 cm

= 12 cm

Breadth of rectangle = 3 × 3 cm

= 9 cm

(a) Area of rectangle = 12 cm × 9 cm

= 108 cm^2

Area of 14 squares = 14 × 9 cm^2

= 126 cm^2

Area of the figure = 108 cm^2 + 126 cm^2

= 234 cm^2

(b) Perimeter of the figure = 22 × 3 cm

= 66 cm

Question 14

(a) Length of Square D = 3 cm

Length of Square F = 15 cm^2 ÷ 3 cm

= 5 cm

(b) Area of E = 5 cm × 3 cm

= 15 cm^2

Let's Practise 6.4

Question 1

Unitary approach

L → 3u

L → 3u

B → 1u

B → 1u

Total → 8u

L

L

B

B

128
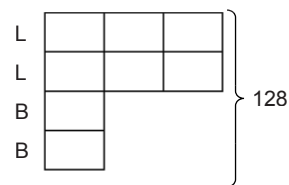
Each rectangle has 2 lengths and 2 breadths.

8u = 128

(B) 1u = 128 ÷ 8

= 16

Question 1 (Cont.)

(L) 3u = 16 × 3

= 48

Area of rectangle = 48 cm × 16 cm

= 768 cm²

Question 2

Let the length of Square A = 1u

1u = 2 cm

Length of Rectangle B = 8u

= 8 × 2 cm

= 16 cm

Breadth of Rectangle B = 4u

= 4 × 2 cm

= 8 cm
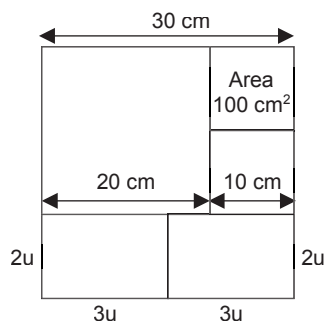
16 + 16 + 8 + 8 = 48

The perimeter of Rectangle B is **48 cm**.

Question 3

Area of square = 100 cm²

1 side of square = 10 cm

Perimeter of square = 4 × 10 cm

= 40 cm

Perimeter	Rectangle
Square = 2u $^{×2}$ (4u)	B = 3u
Rectangle = 7u $^{×2}$ (14u)	L = 4u
	Total Perimeter = 7u + 7u
	=14u

4u = 40

1u = 40 ÷ 4

= 10

Breadth of rectangle (3u) = 3 × 10 cm

= 30 cm

Question 4

Area of 1 small square = 100 cm²

Length of 1 small square = 10 cm

Length of 1 big square = 10 cm + 10 cm

= 20 cm

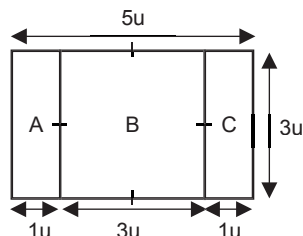Length of figure = 10 cm + 20 cm

= 30 cm

Length of 1 rectangle = 30 cm ÷ 2

= 15 cm

Length of 1 rectangle = 3u

Breadth of 1 rectangle = 2u

3u = 15

1u = 15 ÷ 3

= 5

2u = 5 × 2

= 10

Breadth of 1 rectangle = 10 cm

Area of 1 rectangle = 15 cm × 10 cm

= 150 cm²

Area of 1 big square = 20 cm × 20 cm

= 400 cm²

Area of figure

= 100 cm² + 100 cm² + 400 cm² + 150 cm² + 150 cm²

= 900 cm²

Question 5

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Question 5 (Cont.)

Guess & Check

Length	Breadth	Area of Rectangle	Check
5 × 1 = 5	3 × 1 = 3	5 × 3 = 15	✘
5 × 2 = 10	3 × 2 = 6	10 × 6 = 60	✘
5 × 3 = 15	3 × 3 = 9	15 × 9 = 135	✔

Perimeter = 15 cm + 15 cm + 9 cm + 9 cm

= **48 cm**

Question 6

ABCD

B = 6u

L = 6u

A	B	C	D	E
B = 2u	B = 2u	B = 2u	B = 4u	B = 1u
L = 2u	L = 4u	L = 4u	L = 4u	L = 1u

Breadth (C + D) = 2u + 4u
= 6u
Length (C + A) = 4u + 2u
= 6u

Perimeter E = 24 cm

Breadth of E (1u) = 24 cm ÷ 4

= 6 cm

(a) 1u = 6 cm

6u = 6 × 6 cm

= 36 cm

The length of Square ABCD is **36 cm.**

(b) Breadth of B (2u) = 2 × 6 cm

= 12 cm

Length of B (4u) = 4 × 6 cm

= 24 cm

Area of B = 24 cm × 12 cm

= **288 cm²**

Let's Practise 6.5

Question 1

A	B	Total	Check
7 × 7 = 49	10 × 10 = 100	49 + 100 = 149	✘
8 × 8 = 64	11 × 11 = 121	64 + 121 = 185	✘
9 × 9 = 81	12 × 12 = 144	81 + 144 = 225	✔

Length of A is 9 cm and length of B is 12 cm.

9 + 9 + 9 + 3 + 12 + 12 + 12 + 6 = 72

The perimeter is **72 cm**.

Question 2

Area of small sq	Area of big sq	Difference (Shaded area)	Check
6 × 6 = 36	8 × 8 = 64	64 – 36 = 28	✘
4 × 4 = 16	6 × 6 = 36	36 – 16 = 20	✔

The area of the smaller square is **16 cm²**.

Question 3

Area of small sq	Area of big sq	Difference (Shaded area)	Check
8 × 8 = 64	10 × 10 = 100	100 – 64 = 36	✘
9 × 9 = 81	11× 11 = 121	121 – 81 = 40	✔

Length of big square is 11 cm.

Perimeter of big square = 4 × 11 cm

= **44 cm**

Question 4

Total area of Square A + Square B

= 176 cm² + 9 cm² + 9 cm²

= 194 cm²

Area of A	Area of B	Unshaded region	Check
7 × 7 = 49	15 × 15 = 225	225 + 49 = 274 274 – 9 – 9 = 256	✘
6 × 6 = 36	14 × 14 = 196	196 + 36 = 232 232 – 9 – 9 = 214	✘
5 × 5 = 25	13 × 13 = 169	169 + 25 = 194 194 – 9 – 9 = 176	✔

The length of A and B is **5 cm** and **13 cm** respectively.

Question 5

Length	Breadth	Total perimeter	Check
12 × 2 = 24	2 × 2 = 4	24 + 4 = 28 28 × 2 = 56	✗
8 × 2 = 16	3 × 2 = 6	16 + 6 = 22 22 × 2 = 44	✗
6 × 2 = 12	4 × 2 = 8	12 + 8 = 20 20 × 2 = 40	✓

6 squares long and 4 squares wide

Answers to Review Questions on Chapter 6

Question 1

Area of big rectangle = 20 cm × 16 cm

$$= 320 \text{ cm}^2$$

Area of the shaded part of the figure

= 320 cm^2 – 150 cm^2

= 170 cm^2

Question 2

Length of small square = 12 cm ÷ 3

$$= 4 \text{ cm}$$
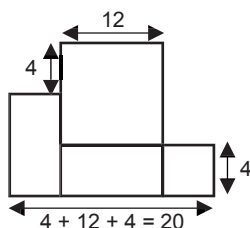
12 + 12 + 4 + 4 + 20 + 12 + 4 + 4 = 72

Perimeter of the figure is **72 cm**.

Question 3

Area of square C = 8 cm × 8 cm

$$= 64 \text{ cm}^2$$

Area of rectangle B = 2 × 64 cm^2

$$= 128 \text{ cm}^2$$

Area of rectangle A = 3 × 128 cm^2

$$= 384 \text{ cm}^2$$

Total area of figure = 64 cm^2 + 128 cm^2 + 384 cm^2

= 576 cm^2

Question 4

Length of each square = 36 cm ÷ 3

$$= 12 \text{ cm}$$

Area of rectangle = 12 cm × 10 cm

= 120 cm^2

Question 5

Area of big rectangle = 15 cm × 12 cm

$$= 180 \text{ cm}^2$$

Area of shaded rectangle = 6 cm × 2 cm

$$= 12 \text{ cm}^2$$

Area of the unshaded part = 180 cm^2 – 12 cm^2

= 168 cm^2

Question 6

Area of square = 7 cm × 7 cm

$$= 49 \text{ cm}^2$$

Area of rectangle = 2 × 49 cm^2

$$= 98 \text{ cm}^2$$

Area of the whole figure = 49 cm^2 + 98 cm^2

= 147 cm^2

Question 7

Area of rectangle after 1st fold = 2 × 25 cm^2

$$= 50 \text{ cm}^2$$

Area of square before folded = 2 × 50 cm^2

$$= 100 \text{ cm}^2$$

100 = 10 × 10

Length of paper unfolded = 10 cm

Perimeter of paper = 4 × 10 cm

= 40 cm

Question 8

Area of 1 square = 256 cm^2 ÷ 4

$$= 64 \text{ cm}^2$$

64 = 8 × 8

Length of each square = 8 cm

Perimeter of figure = 16 cm + 24 cm + 16 cm + 24 cm

= 80 cm

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