



+hinkingMath@™
onSponge

Essential Problem Solving Skills

Answer Booklet

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P4 Solutions

Note : In all solution, u represent units and p represent parts

Chapter 1 Whole Numbers

Answers to Unit 1.1 – Highest Common Factors

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'): $3 \times 3 \times 3 = 27$

2.

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

Highest common factor ('HCF'): $2 \times 2 = 4$

3.

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

Highest common factor ('HCF'): $2 \times 2 \times 8 = 32$

Let's Learn 1.1

Ask Yourself

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

Think Further

1. Number of rabbits in each cage = $32 \div 8$
= 4
Number of hare in each cage = $48 \div 8$
= 6

Let's Practise 1.1

Question 1

4	72, 84
3	18, 21
	6, 7

Maximum number of necklaces = 4×3
= 12

- (a) She can make **12 necklaces**.
(b) There are **6 red beads and 7 blue beads** in each necklace.

Question 2

5	45, 75
3	9, 15
	3, 5

Maximum number of trays needed = 5×3
= 15

- (a) She needs **15 trays**.
(b) There are **3 brownies and 5 strawberry cupcakes** in each tray.

Question 3

2	84, 126, 210
3	42, 63, 105
7	14, 21, 35
	2, 3, 5

Number of staff = $2 \times 3 \times 7$
= 42

- (a) She has **42 staff**.
(b) Each staff received **2 cups, 3 coasters and 5 ball pens**.

Question 4

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

- (a) $2 \times 4 \times 2 = 16$
The greatest possible length of each of the smaller pieces of copper wire is **16 cm**.
(b) $3 + 5 + 6 = 14$
He can get **14 smaller pieces** of copper wire of equal length.

Question 5

3	24, 42
2	8, 14
	4, 7

(a) $3 \times 2 = 6$

The largest possible length of the side of each square coloured paper is **6 cm**.

(b) $4 \times 7 = 28$

Peter needs **28 square coloured papers**.

Question 6

2	20, 36
2	10, 18
	5, 9

(a) $2 \times 2 = 4$

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

(b) $5 \times 9 = 45$

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

Answers to Unit 1.2 – First Common Multiple

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 = $3 \times 3 \times 8$
= **72**

2.

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

FCM of 15 and 27 = $3 \times 5 \times 9$
= **135**

3.

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

FCM of 18 and 48 = $3 \times 2 \times 3 \times 8$
= **144**

Let's Learn 1.2

Ask Yourself

1. 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 = $2 \times 2 \times 3 \times 7$
= 84

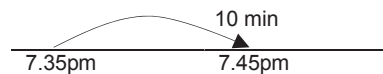
They will cycle again **84 days** later.

Let's Practise 1.2

Question 1

5	5, 10
2	1, 2
	1, 1

FCM of 5 and 10 = $5 \times 2 = 10$



Both lamps would flicker at **7.45 p.m.**

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 = $2 \times 2 \times 2 \times 5$
= 40

The position of the first customer who will 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 = $2 \times 3 \times 5$
= 30

The shortest 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 = $4 \times 5 \times 2 \times 3$
= 120

Olivia has a minimum of **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

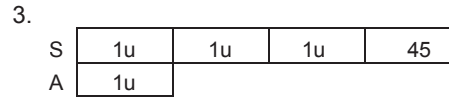
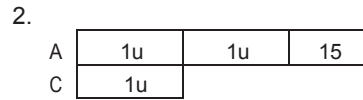
Multiples of 4	4	8	12	16	20	24	28	32	36	40
Add 15 pens	+15	+15	+15	+15	+15	+15	+15	+15	+15	+15
Actual pens	19	23	27	31	35	39	43	47	51	55

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

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

Answers to Unit 1.3 – More than / Less than

Let's Get Started 1.3

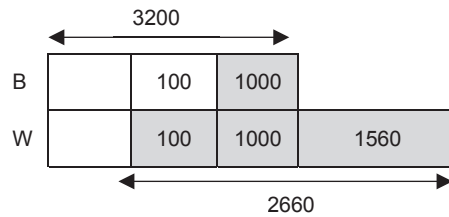


Ask Yourself

- White chips are more than black chips.
- The bar representing white chips should be longer than that representing the black chips.

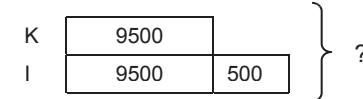
Think Further

- There would be more black chips.



Let's Practise 1.3

Question 1



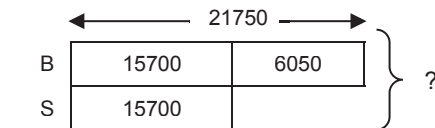
$9500 + 500 = 10\ 000$

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

S		380
M		

In the end

← 2u →			
S	1u	180	200
M	1u		

$$1u = 180$$

$$2u = 180 + 180$$

$$= 360$$

Sheila had 360 seashells in the end.

$$360 + 200 = 560$$

Sheila had **560 seashells** at first.

Question 4

At first

G		18
B		

In the end

← 3u →			
G	1u	12	18
B	1u	12	

$$2u = 12$$

$$1u = 12 \div 2 = 6$$

There were 6 girls at the library in the end.

$$6u + 18 = 6 \times 6 + 18$$

$$= 54$$

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

Question 5

At first

A		4730
B		

In the end

← 2u →				
A	1u	900	2880	1850
B	1u	900		

$$2u = 900 + 2880$$

$$= 3780$$

$$1u = 3780 \div 2$$

$$= 1890$$

Question 5 (Cont.)

There were 1890 mini fruit tarts in Warehouse B in the end.

$$1u + 900 = 1890 + 900$$

$$= 2790$$

There were **2790 mini fruit tarts** in Warehouse B at first.

Question 6

At first

Mr		265
Mrs		

In the end

← 4u →				
Mr	1u	199	215	50
Mrs	1u	199		
← 3u →				

$$3u = 199 + 215$$

$$= 414$$

$$1u = 414 \div 3$$

$$= 138$$

Mrs Lim had 138 button pins in the end.

$$5u + 199 + 50 = 5 \times 138 + 249$$

$$= 939$$

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

Answers to Unit 1.4 – Equal Stage

Let's Get Started 1.4

2.

In the end

C	
B	

At first

C		1350
B		

3.

At first

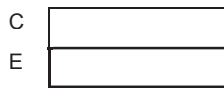
A	
P	

In the end

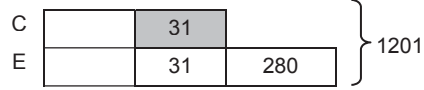
← 2u →			
A	1u	7510	
P	1u	7510	12 500

4.

In the end

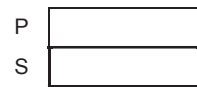


At first

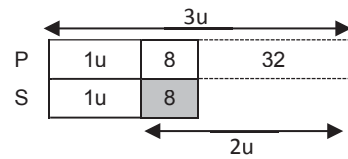


5.

In the end



At first



Let's Learn 1.4

Ask Yourself

- From 'At first' since it is given in the question that Sandy and Ella has the same amount of money at first.
- It would be easier to work on the 'in the end' model as the changes occurred after spending on the necklace. This also helps to make the comparison easier and to clearly see the "At First" model.

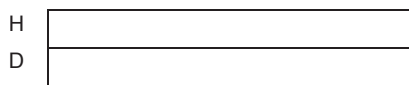
Think Further

- Sandy has four times as much money as Ella. After Ella received \$12, they both have the same amount of money.

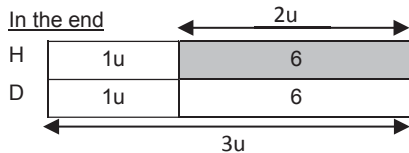
Let's Practise 1.4

Question 1

At first



In the end



$2u = 6$

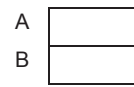
$1u = 6 \div 2$
 $= 3$

$3u = 3 \times 3$
 $= 9$

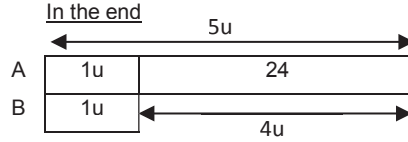
Helen had **9 soft toys** at first.

Question 2

At first



In the end



$4u = 24$

$1u = 24 \div 4$
 $= 6$

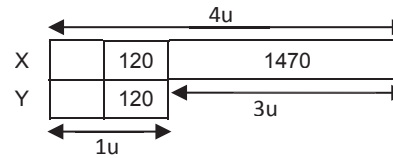
Ben took **6 photos**.

Question 3

At first



In the end



$3u = 1590 - 120$

$= 1470$

$1u = 1470 \div 3$
 $= 490$

$1u - 120 = 490 - 120$
 $= 370$

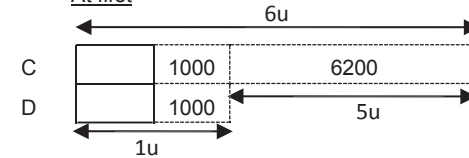
There were **370 trees** in Orchard X at first.

Question 4

In the end



At first



$5u = 7200 - 1000$

$= 6200$

$1u = 6200 \div 5$
 $= 1240$

$6u = 6 \times 1240$
 $= 7440$

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

Question 5

In the end

F	
G	

At first

F	1u	24		} 96
G	1u	24	8	

$$2u = 96 - 24 - 8$$

$$= 64$$

$$1u = 64 \div 2$$

$$= 32$$

Fred had 32 eggs at first.

$$1u + 24 = 32 + 24$$

$$= 56$$

Geneve has **56 eggs** at first.

Question 6

In the end

M	
W	

At first

M	1u	6	24	} 3u
W	1u	6		

$$2u = 30$$

$$1u = 30 \div 2$$

$$= 15$$

There were 15 women at the park at first.

$$1u + 6 = 15 + 6$$

$$= 21$$

There were **21 men and 21 women** in the park in the end.

Answers to Unit 1.5 – Internal Transfer

Let's Get Started 1.5

2.

At first

A		30
C		

In the end

A	12	15	30	} 87
C	12	15	30	

3.

In the end

I	
O	

At first

I		245	245	} 860
O		245		

4.

At first

J		45
P		

In the end

J	1u	45	1u	} 80
P	1u			

5.

In the end

C	
R	

At first

C	1u	200	200	} 3u
R	1u	200		

$2u$

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

- The above solution would change. Sean decreases by 29 and Jovan increases by 58 toys cars.

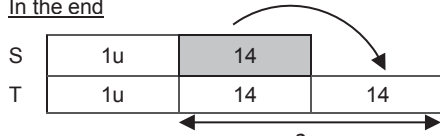
Let's Practise 1.5

Question 1

At first



In the end



$$2u = 14 \times 2$$

$$= 28$$

$$1u = 28 \div 2$$

$$= 14$$

Seraphine had 14 vanilla wafers in the end.

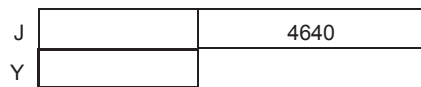
$$3u = 3 \times 14$$

$$= 42$$

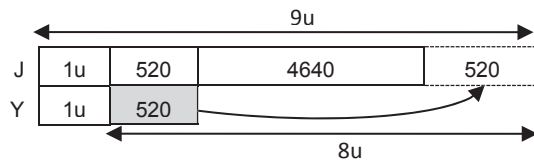
Tanya had **42 vanilla wafers** in the end.

Question 2

At first



In the end



$$8u = 550 + 4640 + 520$$

$$= 5680$$

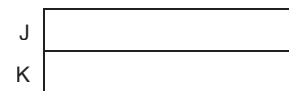
$$1u = 5680 \div 8$$

$$= 710$$

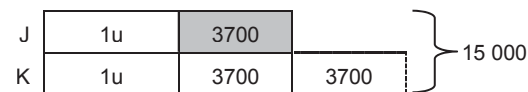
Yvette has **710 bookmarks** in the end.

Question 3

In the end



At first



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

$$= 7600$$

$$1u = 7600 \div 2$$

$$= 3800$$

Question 3 (Cont.)

$$1u + 7400 = 3800 + 7400$$

$$= 11\,200$$

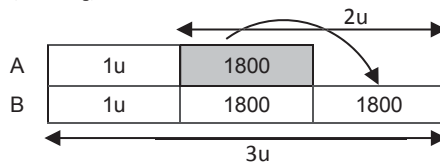
Kaitlin had **\$11 200** at first.

Question 4

Morning



Evening



$$\text{Towels transferred from A to B} = 2500 - 700$$

$$= 1800$$

$$2u = 3600$$

$$1u = 3600 \div 2$$

$$= 1800$$

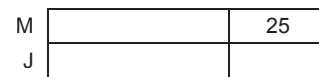
There were 1800 towels in Factory A in the evening.

$$1800 + 1800 = 3600$$

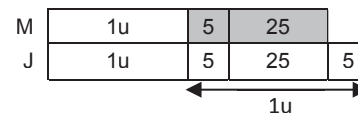
Each factory had **3600 towels** in the morning.

Question 5

At first



In the end



$$\text{M gave to J} = 47 - 17$$

$$= 30$$

$$1u = 35$$

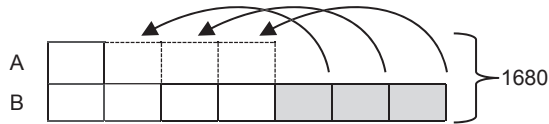
Melvin had 35 cookies in the end.

$$1u + 5 = 35 + 5$$

$$= 40$$

Johnny had **40 cookies** at first.

Question 6



$$8u = 1680$$

$$1u = 1680 \div 8$$

$$= 210$$

$$3u = 3 \times 210$$

$$= 630$$

630 cards must be moved from B to A.

Answers to Unit 1.6 – One Item Unchanged

Let's Get Started 1.6

2.

What had changed?	What remained unchanged?
<ul style="list-style-type: none"> • Damien's money • Total amount of money both had • Difference between the amount of money both had 	<ul style="list-style-type: none"> • Gillian's money

3.

What had changed?	What remained unchanged?
<ul style="list-style-type: none"> • Volume of water in Tank B • Total volume in Tank A and Tank B • Difference in the volume of water in Tank A and Tank B 	<ul style="list-style-type: none"> • Volume of water in Tank A

4.

What had changed?	What remained unchanged?
<ul style="list-style-type: none"> • Number of women • Total number of passengers • Difference between the number of men and the number of women. 	<ul style="list-style-type: none"> • Number of men

Ask Yourself

1. The number of cookies Jordan had changed as he ate some.
2. Michelle still had the same number of cookies.

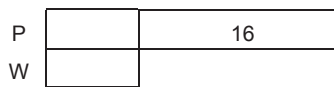
Think Further

1. In the revised question, Michelle's number of cookies is no longer the same. Now the number of cookies Jordan has remained constant. Because of this, the 1 unit now represents the amount Michelle has left rather than the amount Jordan has left.

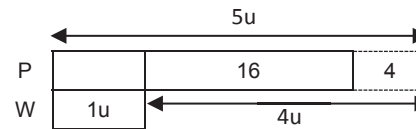
Let's Practise 1.6

Question 1

At first



In the end



$$4u = 16 + 4$$

$$= 20$$

$$1u = 20 \div 4$$

$$= 5$$

Wayne had 5 shirts in the end.

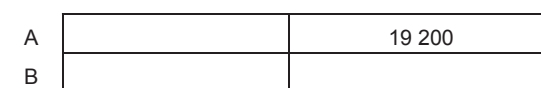
$$5u = 5 \times 5$$

$$= 25$$

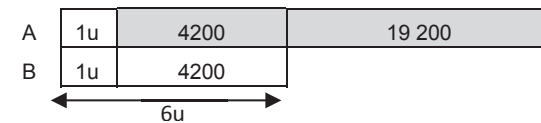
Paul had **25 shirts** in the end.

Question 2

At first



In the end



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

$$= 4200$$

$$1u = 4200 \div 5$$

$$= 840$$

$$1u + 23\,400 = 840 + 23\,400$$

$$= 24\,240$$

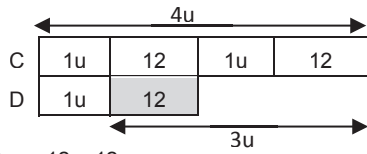
There were **24 240 ants** in Farm A at first.

Question 3

At first



In the end



$$2u = 12 + 12$$

$$= 24$$

$$1u = 24 \div 2$$

$$= 12$$

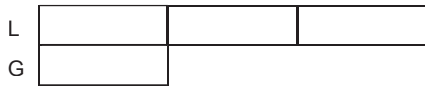
Denise had 12 hair clips in the end.

$$12 + 12 = 24$$

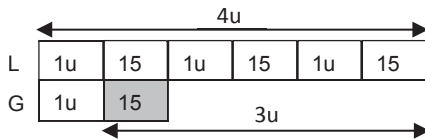
Denise had **24 hair clips** at first.

Question 4

At first



In the end



$$1u = 15 + 15 + 15$$

$$= 45 \text{ pens}$$

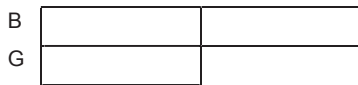
Gillian had 45 pens in the end.

$$45 + 15 = 60$$

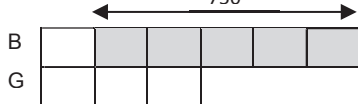
Gillian had **60 pens** at first.

Question 5

At first



In the end



$$5u = 750$$

$$1u = 750 \div 5$$

$$= 150$$

There were 150 boys at the science fair in the end.

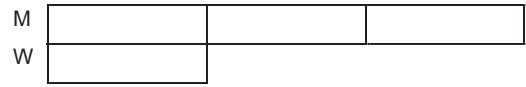
$$9u = 9 \times 150$$

$$= 1350$$

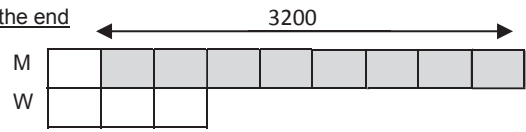
There were **1350 children** at the Science fair at first.

Question 6

At first



In the end



$$8u = 3200$$

$$1u = 3200 \div 8$$

$$= 400$$

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

$$2u = 2 \times 400$$

$$= 800$$

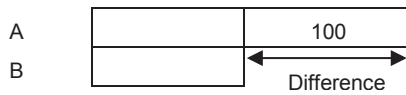
There were **800 more** women than men at the convention in the end.

Answers to Unit 1.7 – Difference Unchanged

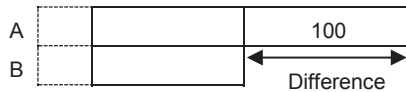
Let's Get Started 1.7

2.

At first

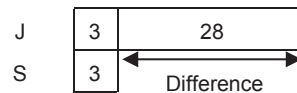


In the end

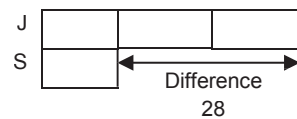


3.

Now

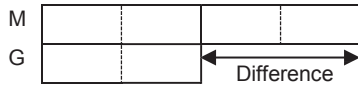


Future

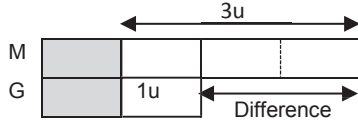


4.

At first

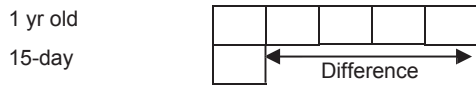


After

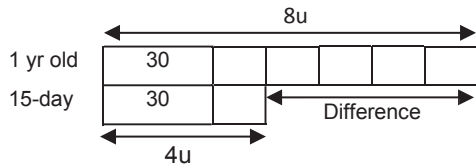


5.

At first



Six months later



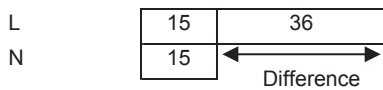
Ask Yourself

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.

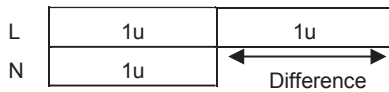
Think further

1. 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 1.7

Question 1

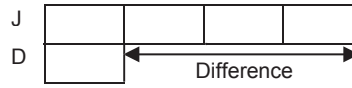
Present

Jamie = 50 years old

Daughter = 29 years old

Difference = 21 years old

Past



$$3u = 21$$

$$1u = 21 \div 3$$

$$= 7$$

$$29 - 7 = 22$$

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



$$2u = 12$$

$$1u = 12 \div 2$$

$$= 6$$

$$\text{Mrs Fong} = 3 \times 6$$

$$= 18$$

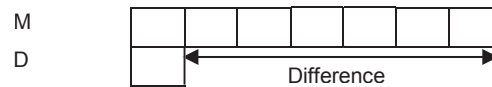
7 years' time (future)

$$18 + 7 = 25$$

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

Question 3

Present



(a) Total age now = $8u$

$$8u = 64 - 16$$

$$= 48$$

$$1u = 48 \div 8$$

$$= 6$$

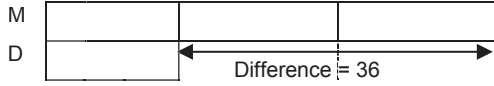
$$6u = 6 \times 6$$

$$= 36$$

Their age difference at present is 36 years.

Question 3 (Cont)

Some years later



$$2u = 36$$

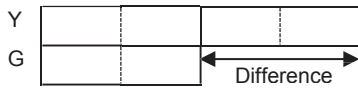
$$1u = 36 \div 2$$

$$= 18$$

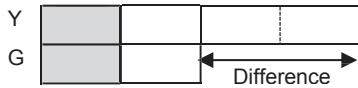
Dan will be **18 years old**, when Mike is 3 times as old as him.

Question 4

At first



In the end



$$\text{Decrease} = 4u - 3u$$

$$= 1u$$

$$1u = 16$$

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

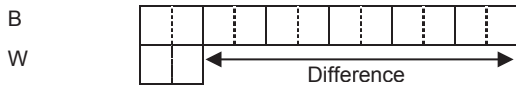
$$4u = 4 \times 16$$

$$= 64$$

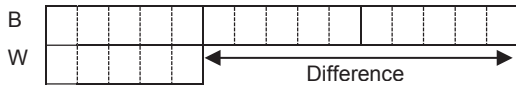
There were **64 chairs** in the hall in the end.

Question 5

At first



End



$$5u = 115$$

$$1u = 115 \div 5$$

$$= 23$$

$$\text{Total balloons and whistles bought} = 3u + 3u$$

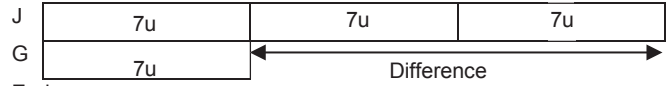
$$= 6u$$

$$6u = 6 \times 23 = 138$$

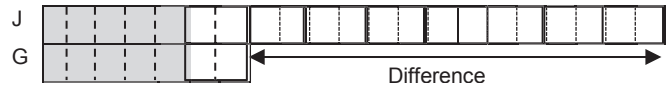
She bought **138 balloons and whistles** in all.

Question 6

At first



End



$$\text{Joni Spent} = 21u - 16u$$

$$= 5u$$

$$5u = 45$$

$$1u = 45 \div 5$$

$$= 9$$

$$\text{Difference} = 14u$$

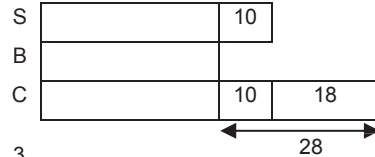
$$14u = 14 \times 9 = 126$$

Joni had **\$126 more** than Glen.

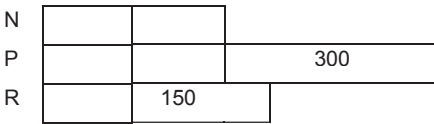
Answer to Unit 1.8 – Repeated Items

Let's Get Started 1.8

2.



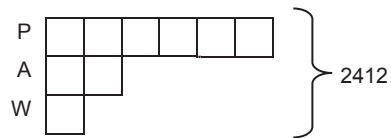
3.



Ask yourself

- The repeated item is the apricots.
- When drawing model, make the model representing the apricots in the middle as it makes it easier to make comparison.

Think Further



$$\text{Total} = 6u + 2u + 1u$$

$$= 9u$$

$$9u = 2412$$

$$1u = 2412 \div 9$$

$$= 268$$

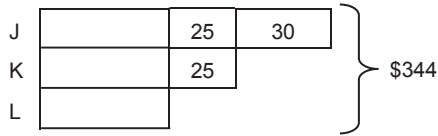
$$6u = 6 \times 268$$

$$= 1608$$

There were **1608 pineapples**.

Let's Practise 1.8

Question 1



$$25 + 25 + 30 = 80$$

$$3u = 344 - 80$$

$$= 264$$

$$1u = 264 \div 3$$

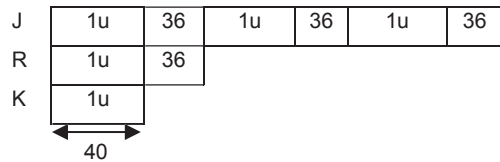
$$= 88$$

Leonard had \$88.

$$88 + 25 + 30 = 143$$

Jason has **\$143**.

Question 2



$$1u = 40$$

$$5u = 5 \times 40$$

$$= 200$$

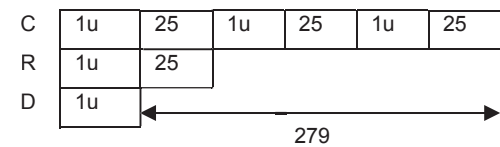
$$4 \times 36 = 144$$

$$5u + 144 = 200 + 144$$

$$= 344$$

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

Question 3



$$25 \times 3 = 75$$

$$2u = 279 - 75$$

$$= 204$$

$$1 \text{ unit} = 204 \div 2$$

$$= 102$$

There were 102 stalks of daisies.

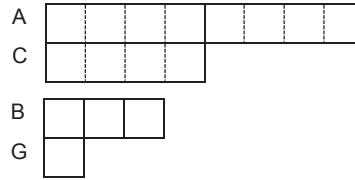
$$\text{Difference in carnations and roses} = 2u + 50$$

$$2u + 50 = 204 + 50$$

$$= 254$$

There were **254 more** stalks of carnations than roses.

Question 4



$$\begin{aligned} \text{Difference between boys and girls} &= 3u - 1u \\ &= 2u \end{aligned}$$

$$2u = 2300$$

$$1u = 2300 \div 2$$

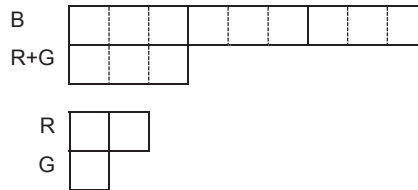
$$= 1150$$

$$8u = 8 \times 1150$$

$$= 9200$$

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

Question 5



$$\begin{aligned} \text{Difference between red and grey} &= 2u - 1u \\ &= 1u \end{aligned}$$

$$1u = 10$$

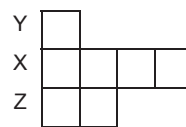
$$\begin{aligned} \text{Difference between black and red} &= 9u - 2u \\ &= 7u \end{aligned}$$

$$7u = 7 \times 10$$

$$= 70$$

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

Question 6



$$\begin{aligned} \text{Difference between Z and Y} &= 2u - 1u \\ &= 1u \end{aligned}$$

$$1u = 42$$

$$2u = 2 \times 42$$

$$= 84$$

$$4u = 4 \times 42$$

$$= 168$$

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

Answers to Unit 1.9 – Quantity x Value

Let's Get Started 1.9

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

Ask yourself

- The quantity is represented by "4 times as many as" and the values are \$3 and \$1 for pineapples and peaches respectively.
- 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 peaches at \$2 less. If Farmer Sally collected \$210 from the sale of all the fruits, how many more peaches than pineapples did she sell?

Let's Practice 1.9

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

$$8u = 160$$

$$1u = 160 \div 8$$

$$= 20$$

There were 20 go-karts.

$$3u = 3 \times 20$$

$$= 60$$

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

$$10u = 80$$

$$1u = 80 \div 10$$

$$= 8$$

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

Question 3

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

$$5u = 150$$

$$1u = 150 \div 5$$

$$= 30$$

There were 30 girls.

$$2u = 2 \times 30$$

$$= 60$$

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

$$9u - 2u = 7u$$

$$7u = 35$$

$$1u = 35 \div 7$$

$$= 5$$

There were 5 sheep.

$$4u = 4 \times 5$$

$$= 20$$

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)
Girls	3u	×	4	12u
Boys	1u	×	8	8u
Total	4u			20u

$$12u - 8u = 4u$$

$$4u = 52$$

$$1u = 52 \div 4$$

$$= 13$$

$$20u = 20 \times 13$$

$$= 260$$

There were **260 chicken wings** that were eaten at the barbeque.

Question 6

Items	Quantity of Items	×	Value of each unit Strawberry	Total Value (Strawberry)
Adults	12	×	3u	36u
Children	30	×	1u	30u
Total	42			66u

$$36u - 30u = 6u$$

$$6u = 42$$

$$1u = 42 \div 6$$

$$= 7$$

$$\text{Strawberry picked} = 66u$$

$$66u = 66 \times 7$$

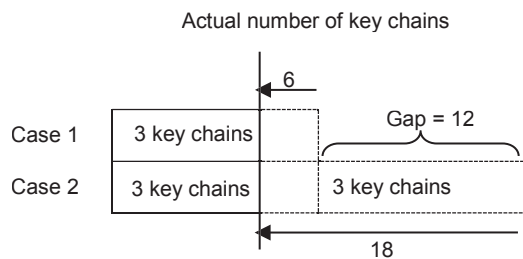
$$= 462$$

They picked **462 strawberries** together.

Answers to Unit 1.10 – Gap & Difference

Let's Get Started 1.10

3.



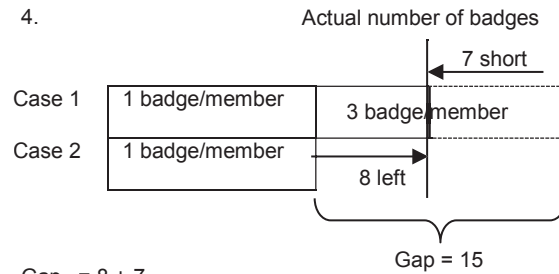
$$\text{Gap} = 18 - 6$$

$$= 12 \text{ (key chains)}$$

$$\text{Difference} = 6 - 3$$

$$= 3 \text{ (key chains)}$$

4.



$$\text{Gap} = 8 + 7$$

$$= 15 \text{ (badges)}$$

$$\text{Difference} = 4 - 1$$

$$= 3 \text{ (badges/member)}$$

Ask yourself

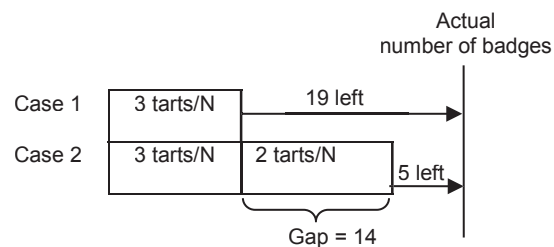
- When both conditions result in 'short or 'left over' scenario, the two results are subtracted. When one result is 'short' and other is 'left over' we add the two results.

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 1.10

Question 1



$$\text{Gap} = 19 - 5$$

$$= 14$$

$$\text{Difference between Case 1 and Case 2} = 5 - 3$$

$$= 2$$

(a) $14 \div 2 = 7$

She shared the tarts with **7 neighbours**.

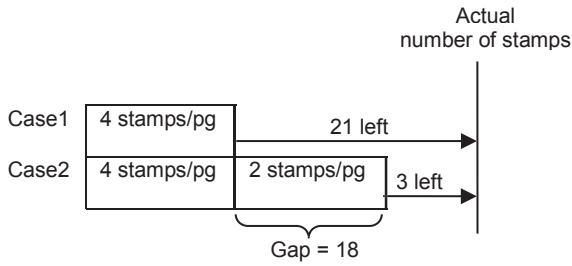
(b) Number of tarts made:

$$\text{Using Case 1 : } 7 \times 3 + 19 = 40$$

$$\text{Using Case 2 : } 7 \times 5 + 5 = 40 \text{ (Checked)}$$

She made **40 tarts**.

Question 2

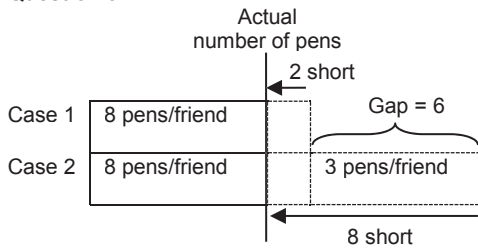


$$\begin{aligned} \text{Gap} &= 21 - 3 \\ &= 18 \end{aligned}$$

$$\begin{aligned} \text{Difference between Case 1 and Case 2} &= 6 - 4 \\ &= 2 \end{aligned}$$

- (a) $18 \div 2 = 9$
The stamps fill **9 pages** of the album.
- (b) Number of stamps:
Using Case 1 : $4 \times 9 + 21 = 57$
Using Case 2 : $6 \times 9 + 3 = 57$ (Checked)
Amos had **57 stamps**.

Question 3

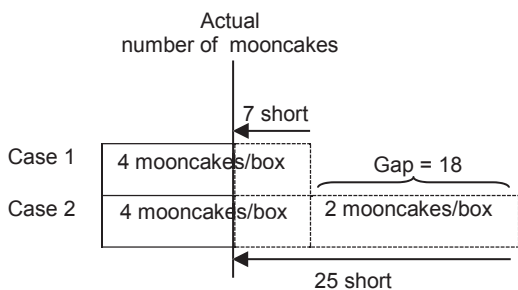


$$\begin{aligned} \text{Gap} &= 8 - 2 \\ &= 6 \end{aligned}$$

$$\begin{aligned} \text{Difference between Case 1 and Case 2} &= 11 - 8 \\ &= 3 \end{aligned}$$

- (a) $6 \div 3 = 2$
Shawn has **2 friends**.
- (b) Number of pens:
Using Case 1 : $2 \times 8 - 2 = 14$
Using Case 2 : $2 \times 11 - 8 = 14$ (Checked)
Shawn has **14 pens**.

Question 4



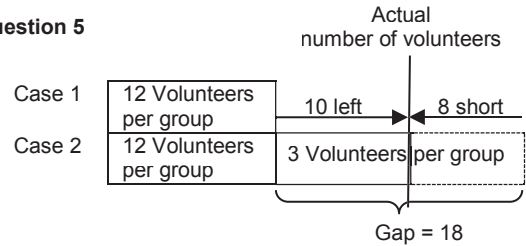
$$\begin{aligned} \text{Gap} &= 25 - 7 \\ &= 18 \end{aligned}$$

$$\text{Difference between Case 1 and Case 2} = 6 - 2 = 4$$

Question 4 (Cont...)

- (a) $18 \div 2 = 9$
There were **9 workers**.
- (b) Number of mooncakes bought:
Using Case 1 : $9 \times 4 - 7 = 29$
Using Case 2 : $9 \times 6 - 25 = 29$ (Checked)
Mr Tan bought **29 mooncakes**.

Question 5

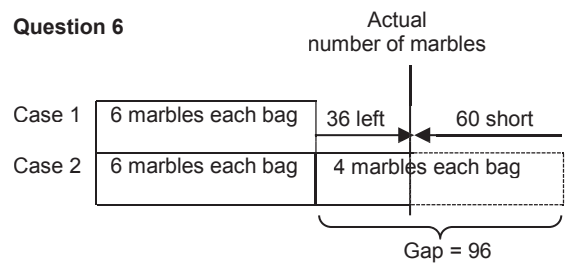


$$\begin{aligned} \text{Gap} &= 10 + 8 \\ &= 18 \end{aligned}$$

$$\begin{aligned} \text{Difference between Case 1 and Case 2} &= 15 - 12 \\ &= 3 \end{aligned}$$

- (a) $18 \div 3 = 6$
There were **6 groups** of volunteers.
- (b) Number of volunteers:
Using Case 1 : $12 \times 6 + 10 = 82$
Using Case 2 : $15 \times 6 - 8 = 82$ (Checked)
There were **82 volunteers** at the event.

Question 6



$$\begin{aligned} \text{Gap} &= 36 + 60 \\ &= 96 \end{aligned}$$

$$\begin{aligned} \text{Difference} &= 10 - 6 \\ &= 4 \end{aligned}$$

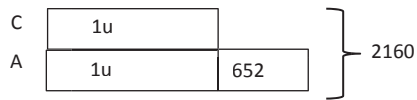
- (a) Number of marbles : $96 \div 4 = 24$
There were **24 bags**.
Using Case 1 : $6 \times 24 + 36 = 180$
Using Case 2 : $10 \times 24 - 60 = 180$ (Checked)
Mr Tang gave **180 marbles** to his sons.

J			
K			

- (b) $4u = 180$
 $1u = 180 \div 4$
 $= 45$
Keith received **45 marbles**.

Answers to Review 1

Question 1



$$2u = 2160 - 652$$

$$= 1508$$

$$1u = 1508 \div 2$$

$$= 754$$

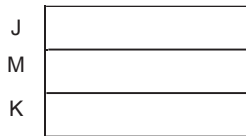
754 children attended the Gala Premier.

$$754 + 652 = 1406$$

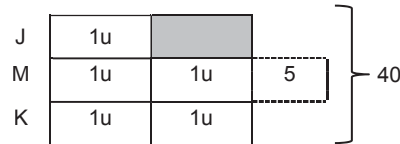
1406 adults attended the Gala Premier.

Question 2

At first



In the end



$$5u = 40 - 5$$

$$= 35$$

$$1u = 35 \div 5$$

$$= 7$$

Juwita had 7 bottle caps in the end.

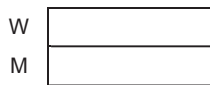
$$2u = 7 \times 2$$

$$= 14$$

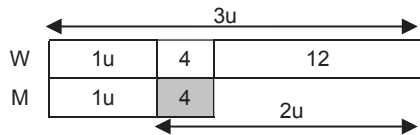
Each girl had **14 bottle caps** at first.

Question 3

In the end



At first



$$2u = 16$$

$$1u = 16 \div 2$$

$$= 8$$

There were 8 men at first.

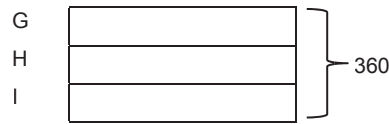
$$3u = 3 \times 8$$

$$= 24$$

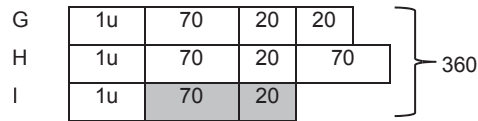
There were **24 women** at the session at first.

Question 4

In the end



At first



(a) $3u = 360$

$$1u = 360 \div 3$$

$$= 120$$

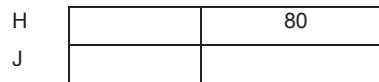
Each of them had **120 cards** in the end.

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

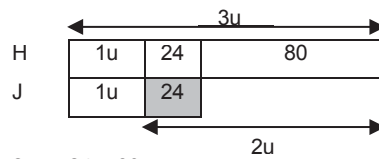
Ian had **30 cards** at first.

Question 5

At first



In the end



$$2u = 24 + 80$$

$$= 104$$

$$1u = 104 \div 2$$

$$= 52$$

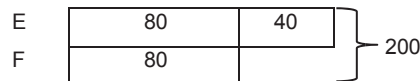
Johan had 52 marbles in the end.

$$52 + 24 = 76$$

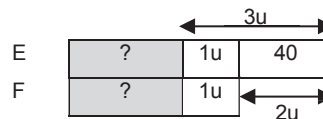
Johan had **76 marbles** at first.

Question 6

At first



In the end



Question 6 (Cont.)

$$2u = 40$$

$$1u = 40 \div 2$$

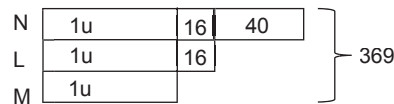
$$= 20$$

Fred had \$20 left in the end.

$$80 - 20 = 60$$

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

Question 7



(a) $16 + 16 + 40 = 72$

$$3u = 369 - 72$$

$$= 297$$

$$1u = 297 \div 3$$

$$= 99$$

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			$10u + 24$

$$10u = 124 - 24$$

$$= 100$$

$$1u = 100 \div 10$$

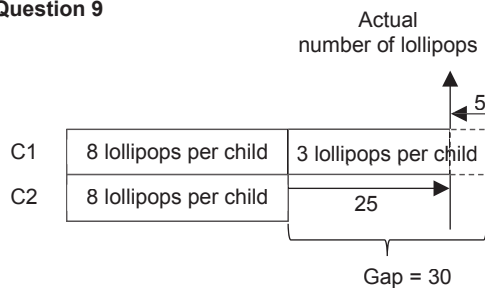
$$= 10$$

Each walnut cake cost \$10.

$$10 + 6 = 16$$

Each cheesecake cost **\$16**.

Question 9



$$\text{Gap} = 25 + 5$$

$$= 30$$

Difference between Case 1 and Case 2

= 3 lollipops per child

Question 9 (Cont.)

(a) $30 \div 3 = 10$

There were **10 children** altogether.

(b) Number of lollipops :

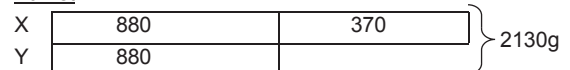
Case 1: $10 \times 11 - 5 = 105$

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

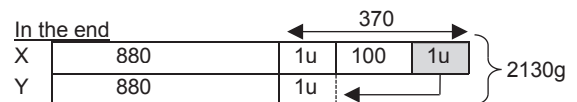
There were **105 lollipops**.

Question 10

At first



In the end



$$2u = 370 - 100$$

$$= 270$$

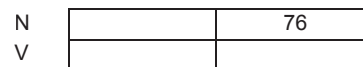
$$1u = 270 \div 2$$

$$= 135$$

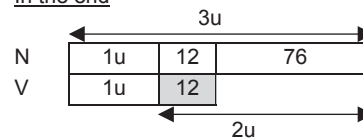
135 g of sand must be transferred from Bag X to Bag Y.

Question 11

At first



In the end



$$2u = 12 + 76$$

$$= 88$$

$$1u = 88 \div 2$$

$$= 44$$

Veronica had 44 stalks of roses in the end.

$$44 + 88 = 132$$

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

Question 12

Difference between Emma's age and Fatima's age

$$= 29 - 17$$

$$= 12$$

Question 12 (Cont.)

Now

F	17	12
E	17	← Difference →

? years ago (Past)

	← 2u →	
F	12	12
E	12	← Difference →

$$1u = 12$$

$$17 - 12 = 5$$

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

$$\begin{aligned} \frac{22}{21} \text{ of the poles} &= 57 \text{ cm} \\ \frac{21}{21} \text{ of the poles} &= 57 + \frac{22}{21} \\ &= 57 \times \frac{21}{22} \\ &= \frac{1197}{22} \\ &= 54.41 \text{ cm} \end{aligned}$$

Ask Yourself

1. Make the denominator of $\frac{1}{6}$ and $\frac{1}{4}$ the same using the first common multiples of 6 and 4.

Think Further

1. 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.

Chapter 2 Fractions

Answers to Unit 2.1 – Fractions Basics

Let's Get Started 2.1

1.

$$\frac{2}{3} = \frac{14}{21} \quad \frac{1}{7} = \frac{3}{21}$$

$$\frac{14}{21} + \frac{3}{21} = \frac{17}{21}$$

2.

$$\begin{aligned} 2 \text{ poles} &= \frac{21}{21} + \frac{21}{21} \\ &= \frac{42}{21} \end{aligned}$$

$$\begin{aligned} \text{Poles unpainted} &= \frac{42}{21} - \frac{17}{21} \\ &= \frac{25}{21} = 1 \frac{4}{21} \end{aligned}$$

3.

$$\frac{1}{3} = \frac{7}{21} \quad \frac{1}{7} = \frac{3}{21}$$

$$\begin{aligned} \text{Bryan painted} &= \frac{7}{21} + \frac{3}{21} \\ &= \frac{10}{21} \end{aligned}$$

$$\begin{aligned} \text{Total poles painted} &= \frac{7}{21} + \frac{10}{21} \\ &= \frac{17}{21} \end{aligned}$$

4.

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

$$\begin{aligned} \text{Total painted} &= \frac{14}{21} + \frac{6}{21} \\ &= \frac{20}{21} \end{aligned}$$

$$\begin{aligned} \text{Poles unpainted} &= \frac{42}{21} - \frac{20}{21} \\ &= \frac{22}{21} \end{aligned}$$

Let's Practise 2.1

Question 1

$$\frac{1}{5} = \frac{7}{35} \text{ (Friends)}$$

$$\frac{3}{7} = \frac{15}{35} \text{ (Neighbours)}$$

$$\frac{7}{35} \text{ of the cookies} = 56$$

$$\begin{aligned} \frac{1}{35} \text{ of the cookies} &= 56 \div 7 \\ &= 8 \end{aligned}$$

$$\begin{aligned} \frac{15}{35} \text{ of the cookies} &= 8 \times 15 \\ &= 120 \end{aligned}$$

120 cookies were given to the neighbours.

Question 2

$$\frac{1}{3} = \frac{3}{9} \text{ (Asia)}$$

$$\frac{4}{9} \text{ (Europe)}$$

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

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

$$\frac{7}{9} \text{ of the stamps} = 84$$

$$\begin{aligned} \frac{1}{9} \text{ of the stamps} &= 84 \div 7 \\ &= 12 \end{aligned}$$

$$\begin{aligned} \frac{2}{9} \text{ of the stamps} &= 2 \times 12 \\ &= 24 \end{aligned}$$

24 stamps are from America.

Question 3

$$(a) \frac{3}{4} = \frac{21}{28} \text{ (Participants)}$$

$$\frac{1}{7} = \frac{4}{28} \text{ (Non-participants)}$$

$$\frac{21}{28} + \frac{4}{28} = \frac{25}{28}$$

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

$$\frac{28}{28} \text{ of the people} = 2800$$

$$\frac{1}{28} \text{ of the people} = 2800 \div 28$$
$$= 100$$

$$\frac{3}{8} \text{ of the people} = 3 \times 100$$
$$= 300$$

There were 300 organisers.

$$(b) \frac{4}{4} \text{ of the organisers} = 300$$

$$\frac{1}{3} \text{ of the organisers female} = 300 \div 4$$
$$= 75$$

75 of organisers were female.

Question 4

$$\frac{3}{8} = \frac{15}{40} \text{ (Children)}$$

$$\frac{2}{5} = \frac{16}{40} \text{ (Colleagues)}$$

$$\text{Difference between children + colleagues} = \frac{16}{40} - \frac{15}{40}$$
$$= \frac{1}{40}$$

$$\frac{1}{40} \text{ of the lemonade} = 80$$

$$\frac{40}{40} \text{ of the lemonade} = 80 \times 40$$
$$= 3200$$

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

Question 5

$$\frac{2}{3} = \frac{8}{12} \text{ (Cushion)}$$

$$\frac{1}{4} = \frac{3}{12} \text{ (Patchwork)}$$

$$\text{Total used for cushions and patchwork} = \frac{8}{12} + \frac{3}{12}$$
$$= \frac{11}{12}$$

$$(a) \frac{11}{12} \text{ of fabric} = 22$$

$$\frac{1}{12} \text{ of fabric} = 22 \div 11$$
$$= 2$$

Question 5 (Cont.)

$$\frac{12}{12} \text{ of fabric} = 12 \times 2$$
$$= 24$$

Selina bought **24 m** of fabric.

$$(b) \frac{4}{4} \text{ of fabric} = 24$$

$$\frac{1}{4} \text{ of fabric} = 24 \div 4$$
$$= 6$$

Since Selina was left with 2 m of the fabric and she needed another m, she would need = 6 m – 2 m = 4 m
Selina would need to buy another **4 m** of the fabric.

Question 6

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

$$\frac{1}{5} = \frac{2}{10} \text{ (Fruit)}$$

$$\text{Fruit + Nut} = \frac{2}{10} + \frac{5}{10}$$
$$= \frac{7}{10}$$

$$\text{Original} = 1 - \frac{7}{10}$$
$$= \frac{3}{10}$$

$$(a) \frac{3}{10} \text{ of the total} = 270$$

$$\frac{1}{10} \text{ of the total} = 270 \div 3$$
$$= 90$$

$$\frac{10}{10} \text{ of the total} = 90 \times 10$$
$$= 900$$

There were 900 muffins.

$$(b) \frac{6}{6} \text{ of total} = 900$$

$$\frac{1}{6} \text{ of total} = 900 \div 6$$
$$= 150$$

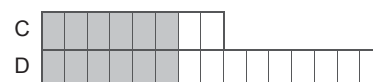
There were **150 muffins** left.

Answers to Unit 2.2 - Numerators the same

Let's Get Started 2.2

3.

Model-drawing approach



Unitary approach

$$\left. \begin{array}{l} \frac{3}{4}C = \frac{2}{5}D \\ \frac{6}{8}C = \frac{6}{15}D \end{array} \right\} \begin{array}{l} \text{Total C} = 8u \\ \text{Total D} = 15u \\ \text{Total} = 8u + 15u \\ = 23u \end{array}$$

4.

Unitary approach

$$\left. \begin{array}{l} \frac{5}{7}E = \frac{3}{5}F \\ \frac{15}{21}E = \frac{15}{25}F \end{array} \right\} \begin{array}{l} \text{Total E} = 21u \\ \text{Total F} = 25u \\ \text{Total} = 21u + 25u \\ = 46u \end{array}$$

Ask Yourself

- 1) The total number of boys is represented by the denominator 3.
- 2) No. It only means that the given fractions of the boys and girls are equal.

Think Further

1.

$$\left. \begin{array}{l} \frac{2}{3}B = \frac{3}{5}G \\ \frac{6}{9}B = \frac{6}{10}G \end{array} \right\} \begin{array}{l} \text{Total B} = 9u \\ \text{Total G} = 10u \\ \text{Total} = 9u + 10u \\ = 19u \end{array}$$

$$\begin{aligned} \text{Difference} &= 10u - 9u \\ &= 1u \end{aligned}$$

$$1u = 15$$

$$\begin{aligned} 19u &= 19 \times 15 \\ &= 285 \end{aligned}$$

There were **285 children** altogether.

Let's Practise 2.2

Question 1

$$\left. \begin{array}{l} \frac{1}{2}S = \frac{3}{4}C \\ \frac{3}{6}S = \frac{3}{4}C \end{array} \right\} \begin{array}{l} \text{Total S} = 6u \\ \text{Total C} = 4u \\ \text{Total} = 6u + 4u \\ = 10u \end{array}$$

$$10u = 60$$

$$\begin{aligned} 1u &= 60 \div 10 \\ &= 6 \end{aligned}$$

$$\begin{aligned} \text{(a)} \quad 6u &= 6 \times 6 \\ &= 36 \end{aligned}$$

There are **36 storybooks**

$$\begin{aligned} \text{(b)} \quad 2u &= 2 \times 6 \\ &= 12 \end{aligned}$$

There are **12 more** storybooks than comic books.

Question 2

$$\left. \begin{array}{l} \frac{1}{3}A = \frac{2}{3}C \\ \frac{2}{6}A = \frac{2}{3}C \end{array} \right\} \begin{array}{l} \text{Total A} = 6u \\ \text{Total C} = 3u \\ \text{Total} = 6u + 3u \\ = 9u \end{array}$$

$$9u = 45$$

$$\begin{aligned} 1u &= 45 \div 9 \\ &= 5 \end{aligned}$$

$$\begin{aligned} 6u &= 6 \times 5 \\ &= 30 \end{aligned}$$

There were **30 apple sweets**.

Question 3

Orange Tiles

$$\frac{2}{3} \text{ (Used)} \quad \frac{1}{3} \text{ (Left)} \quad \frac{3}{3} \text{ (At first)}$$

Blue Tiles

$$\frac{1}{4} \text{ (Used)} \quad \frac{3}{4} \text{ (Left)} \quad \frac{4}{4} \text{ (At first)}$$

Left

$$\left. \begin{array}{l} \frac{1}{3}O = \frac{3}{4}B \\ \frac{3}{9}O = \frac{3}{4}B \end{array} \right\} \begin{array}{l} \text{Total O} = 9u \\ \text{Total B} = 4u \\ \text{Total} = 9u + 4u \\ = 13u \end{array}$$

$$13u = 130$$

$$\begin{aligned} 1u &= 130 \div 13 \\ &= 10 \end{aligned}$$

$$\begin{aligned} 3u &= 3 \times 10 \\ &= 30 \end{aligned}$$

Chu Kang had **30 orange tiles** in the end.

Question 4

Chickens

$$\frac{3}{8} \text{ (Sold)} \quad \frac{5}{8} \text{ (Left)} \quad \frac{8}{8} \text{ (At first)}$$

Ducks

$$\frac{3}{5} \text{ (Sold)} \quad \frac{2}{5} \text{ (Left)} \quad \frac{5}{5} \text{ (At first)}$$

Left

$$\frac{5}{8}C = \frac{2}{5}D$$

$$\frac{10}{16}C = \frac{10}{25}D$$

$$\begin{aligned} \underline{\text{Total}} \\ C &= 16u \end{aligned}$$

$$D = 25u$$

Sold

$$\begin{aligned} C &= 16u - 10u \\ &= 6u \end{aligned}$$

$$\begin{aligned} D &= 25u - 10u \\ &= 15u \end{aligned}$$

$$\begin{aligned} \text{Difference} &= 15u - 6u \\ &= 9u \end{aligned}$$

Question 4 (Cont.)

$$9u = 36$$

$$1u = 36 \div 9$$

$$= 4$$

$$\text{Total sold} = 6u + 15u$$

$$= 21u$$

$$21u = 21 \times 4$$

$$= 84$$

Mr Lim sold **84 ducks and chickens.**

Question 5

$$\left. \begin{array}{l} \frac{1}{5} J = \frac{3}{4} K = \frac{2}{3} L \\ \frac{6}{30} J = \frac{6}{8} K = \frac{6}{9} L \end{array} \right\} \begin{array}{l} \text{Total J} = 30u \\ \text{Total K} = 8u \\ \text{Total L} = 9u \\ \text{Total} = 30u + 8u + 9u \\ = 47u \end{array}$$

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

$$= 1u$$

$$1u = 9$$

$$47u = 47 \times 9$$

$$= 423$$

The boys received **\$423** from their uncle.

Question 6

$$\left. \begin{array}{l} \frac{3}{4} L = \frac{6}{7} E = \frac{4}{5} G \\ \frac{12}{16} L = \frac{12}{14} E = \frac{12}{15} G \end{array} \right\} \begin{array}{l} \text{Total L} = 16u \\ \text{Total E} = 14u \\ \text{Total G} = 15u \end{array}$$

$$\text{Difference} = 16u - 14u$$

$$= 2u$$

$$2u = 14$$

$$1u = 14 \div 2$$

$$= 7$$

$$16u = 16 \times 7$$

$$= 112 \text{ (Lucia)}$$

$$14u = 14 \times 7$$

$$= 98 \text{ (Eliza)}$$


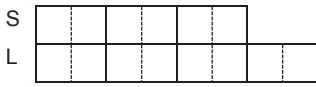
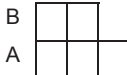
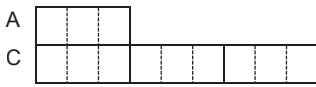
$$15u = 15 \times 7$$

$$= 105 \text{ (Grace)}$$

Lucia, Eliza and Grace collected **112, 98 and 108 leaves** respectively.

Answers to Unit 2.3 – Repeated Items

Let's Get Started 2.3

<p>2.</p> <p>Model-drawing approach</p> <p>J </p> <p>S </p>	<p>Unitary Approach</p> <p>J = $1u^{x3}$ (3u)</p> <p>S = $2u^{x3}$ (6u)</p> <p>S = $3u^{x2}$ (6u)</p> <p>L = $4u^{x2}$ (8u)</p> <p><u>Summary</u></p> <p>S = 6u</p> <p>J = 3u</p> <p>L = 8u</p>
<p>3.</p> <p>Model-drawing approach</p> <p>B </p> <p>A </p>	<p>Unitary Approach</p> <p>B = 2u</p> <p>A = 3u</p> <p>A = $1u^{x3}$ (3u)</p> <p>C = $3u^{x3}$ (9u)</p> <p><u>Summary</u></p> <p>A = 3u</p> <p>B = 2u</p> <p>C = 9u</p>

Ask Yourself

- Sylvia is repeated.
- The units representing the repeated subject must be made the same.

Think Further

1.

<p><u>Case 1</u></p> <p>S = $2u^{x3}$ (6u)</p> <p>C = $5u^{x3}$ (15u)</p>	<p><u>Summary</u></p> <p>S = 6u</p> <p>C = 15u</p> <p>J = 20u</p> <p>Total = 6u + 15u + 20u</p> <p>= 41u</p>
<p><u>Case 2</u></p> <p>C = $3u^{x5}$ (15u)</p> <p>J = $4u^{x5}$ (20u)</p>	

$$20u = 40$$

$$1u = 40 \div 20$$

$$= 2$$

Number of files Charmaine bought more than Sylvia

$$= 15u - 6u$$

$$= 9u$$

$$9u = 9 \times 2$$

$$= 18$$

Charmaine bought **18 more** files than Sylvia.

Let's Practise 2.3

Question 1

Case 1

A = 1u

P = 3u

Case 2

A = 1u

O = 2u

Summary

A = 1u

P = 3u

O = 2u

Total = 1u + 2u + 3u
= 6u

6u = 60

1u = 60 ÷ 6

= 10

3u = 3 × 10

= 30

There are **30 pears**.

Question 2

Case 1

M = 2u

L = 3u

Case 2

M = 1u^{x2} (2u)

N = 3u^{x2} (6u)

Summary

M = 2u

L = 3u

N = 6u

Total = 2u + 3u + 6u
= 11u

Difference between Nathaniel and Michael

= 6u - 2u

= 4u

4u = 44

1u = 44 ÷ 4

= 11

11u = 11 × 11

= 121

They have a total of **121 cards**.

Question 3

Case 1

P = 3u^{x2} (6u)

S = 5u^{x2} (10u)

Case 2

S = 2u^{x5} (10u)

T = 3u^{x5} (15u)

Summary

P = 6u

S = 10u

T = 15u

Total = 6u + 10u + 15u
= 31u

Difference between Tess and Patrick = 15u - 6u

= 9u

9u = 63

1u = 63 ÷ 9

= 7

31u = 31 × 7

= 217

The children were given **217 sweets**.

Question 4

Case 1

Red = 4u^{x3} (12u)

Yellow = 7u^{x3} (21u)

Case 2

Red = 3u^{x4} (12u)

Green = 5u^{x4} (20u)

Summary

R = 12u

Y = 21u

G = 20u

Total = 12u + 21u + 20u
= 53u

53u = 106

1u = 106 ÷ 53

= 2

21u = 21 × 2

= 42

A total of **42 yellow ribbons** were used in August.

Question 5

Case 1

C = 2u^{x5} (10u)

M = 3u^{x5} (15u)

Case 2

C = 5u^{x2} (10u)

I = 4u^{x2} (8u)

Summary

C = 10u

M = 15u

I = 8u

Total = 10u + 15u + 8u
= 33u

Malay and Indian = 15u + 8u

= 23u

Difference between Chinese students and the Malay

and Indian students combined = 23u - 10u

= 13u

13u = 104

1u = 104 ÷ 13

= 8

33u = 33 × 8

= 264

A total of **264 students** enrolled in the school.

Question 6

$\frac{2}{3}M = \frac{1}{4}K$

$\frac{2}{3}M = \frac{2}{8}K$

Question 6 (Cont.)

Case 1

$M = 3u^{x^4} (12u)$

$K = 8u^{x^4} (32u)$

Case 2

$M = 4u^{x^3} (12u)$

$L = 7u^{x^3} (21u)$

Summary

$M = 12u$

$K = 32u$

$L = 21u$

Total = $12u + 32u + 21u$
= $65u$

Kelvin and Marvin = $12u + 32u$
= $44u$

Difference of Kelvin and Marvin with Lionel
= $44u - 21u$

= $23u$

$23u = 115$

$1u = 115 \div 23$

= 5

$21u = 21 \times 5$

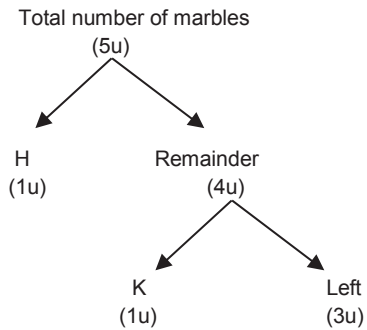
= 105

Lionel has **105 bullets**.

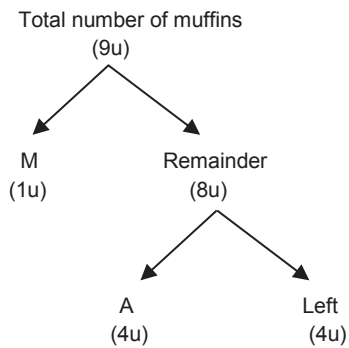
Answers to Unit 2.4 – Branching

Let's Get Started 2.4

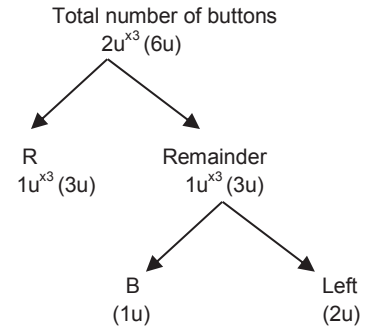
1.



2.



3.

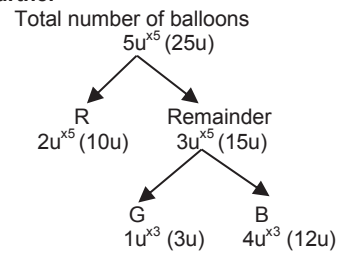


Ask Yourself

1. 'The keywords are 'of the remainder'.

Think Further

1.



$3u = 36$

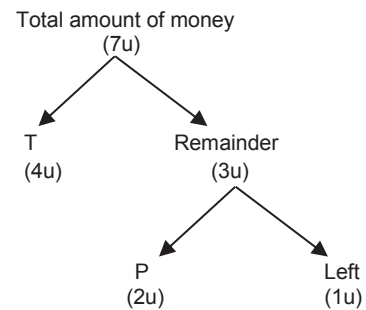
$1u = 36 \div 3 = 12$

$25u = 25 \times 12 = 300$

There were **300 balloons** at the party.

Let's Practise 2.4

Question 1



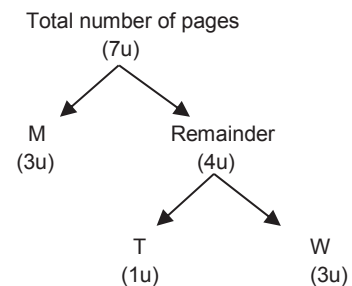
$1u = 5$

$7u = 7 \times 5$

= 35

He had **\$35** at first.

Question 2



Question 2 (Cont.)

$$\begin{aligned} \text{Difference} &= 3u - 1u \\ &= 2u \end{aligned}$$

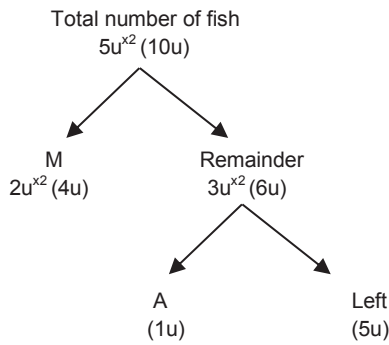
$$2u = 60$$

$$\begin{aligned} 1u &= 60 \div 2 \\ &= 30 \end{aligned}$$

$$\begin{aligned} 7u &= 7 \times 30 \\ &= 210 \end{aligned}$$

There were **210 pages** in the novel.

Question 3



$$5u = 25$$

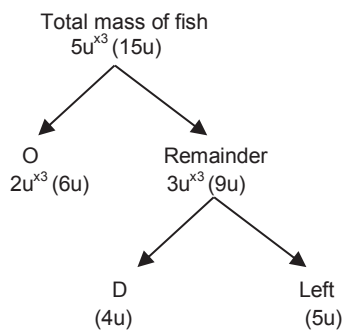
$$\begin{aligned} 1u &= 25 \div 5 \\ &= 5 \end{aligned}$$

$$\begin{aligned} \text{Difference} &= 4u - 1u \\ &= 3u \end{aligned}$$

$$\begin{aligned} 3u &= 3 \times 5 \\ &= 15 \end{aligned}$$

He sold **15 more fish** in the morning than in the afternoon.

Question 4

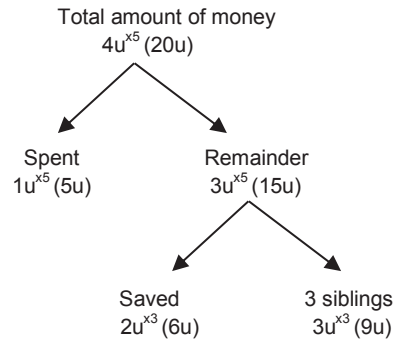


$$15u = 600$$

$$\begin{aligned} 5u &= 600 \div 3 \\ &= 200 \end{aligned}$$

Maureen had **200 g** of fish left.

Question 5



$$20u = 240$$

$$\begin{aligned} 1u &= 240 \div 20 \\ &= 12 \end{aligned}$$

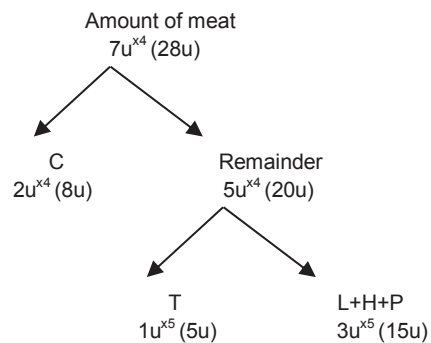
$$3 \text{ siblings} = 9u$$

$$\begin{aligned} 1 \text{ sibling} &= 9u \div 3 \\ &= 3u \end{aligned}$$

$$\begin{aligned} 3u &= 3 \times 12 \\ &= 36 \end{aligned}$$

Each of her siblings received **\$36**.

Question 6



$$\begin{aligned} P &= 15u \div 3 \\ &= 5u \end{aligned}$$

$$5u = 30$$

$$\begin{aligned} 1u &= 30 \div 5 \\ &= 6 \end{aligned}$$

$$\begin{aligned} 28u &= 28 \times 6 \\ &= 168 \end{aligned}$$

He needed **168 kg** of meat to feed all the animals

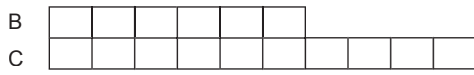
Answers to Unit 2.5 – One Item Unchanged

Let's Get Started 2.5

2. What did not change? **The number of buns.**

Model-drawing approach

At first



End



Unitary approach

At first

$$B = 3u^2 \text{ (6u)}$$

$$C = 5u^2 \text{ (10u)}$$

End

$$B = 6u$$

$$C = 7u$$

$$\begin{aligned} \text{Change in the number of cakes} &= 10u - 7u \\ &= 3u \end{aligned}$$

$$3u = 12$$

$$1u = 12 \div 3$$

$$= 4$$

3. What did not change? **The amount of money Keith has.**

Model-drawing approach

At first



End



Unitary approach

At first

$$J = 3u^5 \text{ (15u)}$$

$$K = 7u^5 \text{ (35u)}$$

End

$$J = 1u^7 \text{ (7u)}$$

$$K = 5u^7 \text{ (35u)}$$

$$8u = 24$$

$$1u = 24 \div 8$$

$$= 3$$

Ask Yourself

1.

$$\begin{aligned} \frac{\text{Increase in number of wine glasses}}{\text{Number of wine glasses at first}} &= \frac{12}{3} \\ &= 4 \end{aligned}$$

There were 3 times increased in the number of wine glasses compared to the number of wine glasses at first.

Let's Practise 2.5

Question 1

At first

$$D = 2u$$

$$C = 1u$$

End

$$D = 1u^2 \text{ (2u)}$$

$$C = 6u^2 \text{ (12u)}$$

$$\begin{aligned} \text{Changes in C} &= 12u - 1u \\ &= 11u \end{aligned}$$

$$11u = 22$$

$$1u = 22 \div 11$$

$$= 2$$

$$\begin{aligned} \text{Total in the end} &= 12u + 2u \\ &= 14u \end{aligned}$$

$$14u = 14 \times 2$$

$$= 28$$

There are **28 cakes** in the end.

Question 2

At first

$$M = 4u$$

$$F = 5u$$

End

$$M = 1u^2 \text{ (4u)}$$

$$F = 3u^2 \text{ (12u)}$$

$$\begin{aligned} \text{Difference} &= 12u - 5u \\ &= 7u \end{aligned}$$

$$7u = 28$$

$$1u = 28 \div 7$$

$$= 4$$

$$12u = 12 \times 4$$

$$= 48$$

There were **48 female dancers** in the CCA in the end.

Question 3

At first

$$P = 2u^7 \text{ (14u)}$$

$$M = 3u^7 \text{ (21u)}$$

Question 3 (Cont.)

End

$$P = 3u^{x^3} (9u)$$

$$M = 7u^{x^3} (21u)$$

$$\begin{aligned} \text{Difference} &= 14u - 9u \\ &= 5u \end{aligned}$$

$$5u = 25$$

$$1u = 25 \div 5$$

$$= 5$$

$$\begin{aligned} 14u &= 14 \times 5 \\ &= 70 \text{ (P at first)} \end{aligned}$$

$$\begin{aligned} 21u &= 21 \times 5 \\ &= 105 \text{ (M at first)} \end{aligned}$$

$$70 + 105 = 175$$

Heidi has **175 stamps** altogether in both boxes at first.

Question 4

At first

$$B = 3u^{x^3} (9u)$$

$$C = 3u^{x^8} (24u)$$

$$G = 5u^{x^3} (15u)$$

$$A = 1u^{x^8} (8u)$$

$$C = 8u^{x^3} (24u)$$

End

$$C = 4u^{x^6} (24u)$$

$$A = 1u^{x^6} (6u)$$

$$\begin{aligned} \text{Difference} &= 8u - 6u \\ &= 2u \end{aligned}$$

$$2u = 28$$

$$1u = 28 \div 2$$

$$= 14$$

$$\begin{aligned} \text{Difference (end)} &= 24u - 6u \\ &= 18u \end{aligned}$$

$$\begin{aligned} 18u &= 18 \times 14 \\ &= 252 \end{aligned}$$

There were **252 more children than adults** in the end.

Question 5

At first

$$C = 2u$$

$$R = 3u$$

End

$$C = 1u^{x^2} (2u)$$

$$R = 4u^{x^2} (8u)$$

$$\begin{aligned} \text{Difference} &= 8u - 3u \\ &= 5u \end{aligned}$$

$$5u = 35$$

$$1u = 35 \div 5$$

$$= 7$$

$$3u = 3 \times 7$$

$$= 21$$

There were **21 stalks of roses** in the basket.

Question 6

At first

$$T = 2u^{x^5} (10u)$$

$$S = 5u^{x^5} (25u)$$

End

$$T = 5u^{x^2} (10u)$$

$$S = 4u^{x^2} (8u)$$

$$\begin{aligned} \text{Change in S} &= 25u - 8u \\ &= 17u \end{aligned}$$

$$17u = 51$$

$$1u = 51 \div 17$$

$$= 3$$

$$10u = 10 \times 3$$

$$= 30$$

There were **30 teachers** at the hall.

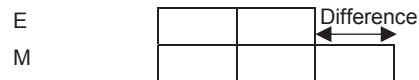
Answers to Unit 2.6 – Difference Unchanged

Let's Get Started 2.6

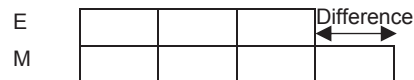
3. What remained the same?
The age difference between Ethan and his mother.

Model-drawing approach

12 years ago



Now



Unitary approach

12 years ago

$$E = 2u$$

$$M = 3u$$

$$\text{Difference} = 1u$$

Now

$$E = 3u$$

$$M = 4u$$

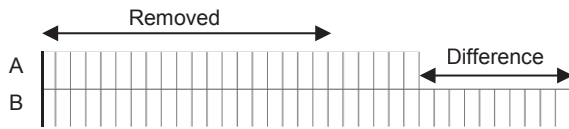
$$\text{Difference} = 1u$$

$$1u = 12$$

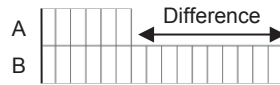
4. What remained the same?
Difference between Basket A and Basket B

Model-drawing approach

At First



End



Unitary approach

At first

$$A = 5u^{x^5} (25u)$$

$$B = 7u^{x^5} (35u)$$

$$\text{Difference} = 2u^{x^5} (10u)$$

End

$$A = 3u^{x^2} (6u)$$

$$B = 8u^{x^2} (16u)$$

$$\text{Difference} = 5u^{x^2} (10u)$$

$$19u = 95$$

$$1u = 95 \div 17$$

$$= 5$$

Let's Learn 2.6

Ask Yourself

- Jonathan cannot be $\frac{3}{5}$ as old as Diana at every stage of their life since their age differs and at every stage of comparison the numerator and denominator will not be the same.

Think Further

$$J = 2u$$

$$D = 1u$$

$$\text{Difference} = 1u$$

$$1u = 12$$

$$12 - 3 = 9$$

In 9 years time.

Let's Practise 2.6

Question 1

34 years ago

$$W = 2u^{x^2} (4u)$$

$$R = 9u^{x^2} (18u)$$

$$\text{Difference} = 7u^{x^2} (14u)$$

Now

$$W = 3u^{x^7} (21u)$$

$$R = 5u^{x^7} (35u)$$

$$\text{Difference} = 2u^{x^7} (14u)$$

$$17u = 34$$

$$1u = 34 \div 17$$

$$= 2$$

$$35u = 35 \times 2$$

$$= 70$$

Uncle Roy is **70 years old** now.

Question 2

15 years ago

$$S = 1u$$

$$E = 5u$$

$$\text{Difference} = 4u$$

Now

$$S = 1u^{x^4} (4u)$$

$$E = 2u^{x^4} (8u)$$

$$\text{Difference} = 1u^{x^4} (4u)$$

$$3u = 15$$

$$1u = 15 \div 3$$

$$= 5$$

$$4u = 4 \times 5$$

$$= 20$$

$$31 + 20 = 51$$

Eileen would be **51 years old** when Samuel was 31 years old.

Question 3

Now

$$R = 3u^{x^3} (9u)$$

$$F = 7u^{x^3} (21u)$$

$$\text{Difference} = 4u^{x^3} (12u)$$

Future

$$R = 5u^{x^4} (20u)$$

$$F = 8u^{x^4} (32u)$$

$$\text{Difference} = 3u^{x^4} (12u)$$

$$12u = 24$$

$$1u = 24 \div 12$$

$$= 2$$

$$\text{Number of years later} = 20u - 9u$$

$$= 11u$$

$$11u = 11 \times 2$$

$$= 22$$

In **22 years' time**, Roger will be $\frac{5}{8}$ as old as his father.

Question 4

At first

$$\text{Tin} = 3u^{x^3} (9u)$$

$$\text{Plastic} = 5u^{x^3} (15u)$$

$$\text{Difference} = 2u^{x^3} (6u)$$

$$5u = 150$$

$$1u = 150 \div 5$$

$$= 30$$

$$15u = 15 \times 30$$

$$= 450$$

The mass of the plastic bottle at first is **450 g**.

Question 5

At first

$$B = 5u^{x^5} (25u)$$

$$C = 8u^{x^5} (40u)$$

$$\text{Difference} = 3u^{x^5} (15u)$$

Difference in the button pins at first and at the end =

$$13u$$

Jennifer gave away $\frac{13}{25}$ of the button pins.

End

$$B = 4u^{x^3} (12u)$$

$$C = 9u^{x^3} (27u)$$

$$\text{Difference} = 5u^{x^3} (15u)$$

Question 6

Clint

$$\text{At first} = 6u^{x^4} (24u)$$

$$\text{End} = 1u^{x^4} (4u)$$

$$\text{Difference} = 5u^{x^4} (20u)$$

$$20u = 40$$

$$1u = 40 \div 20$$

$$= 2$$

$$24u = 24 \times 2$$

$$= 48 \text{ (Clint at first)}$$

$$35u = 35 \times 2$$

$$= 70 \text{ (Emma at first)}$$

Clint and Emma had **\$48 and \$70** respectively at first.

Emma

$$\text{At first} = 7u^{x^5} (35u)$$

$$\text{End} = 3u^{x^5} (15u)$$


$$\text{Difference} = 4u^{x^5} (20u)$$

Chapter 3 Geometry

Answers to Unit 3.1 – Perpendicular and Parallel

Let's Practise 3.1

Question 1



Parallel	1	2	3
Perpendicular	1	0	2

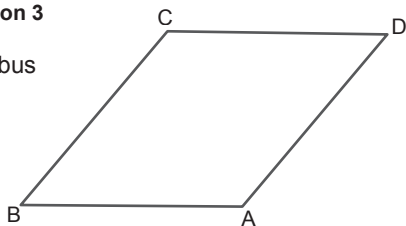
Question 2

(a) C and B, D and A

(b) H and D

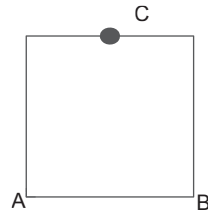
Question 3

Rhombus



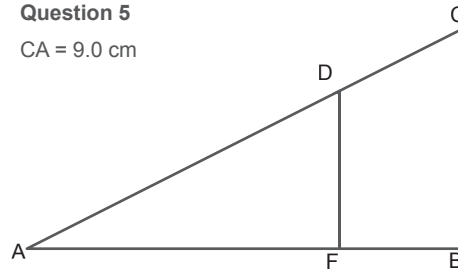
Question 4

Square



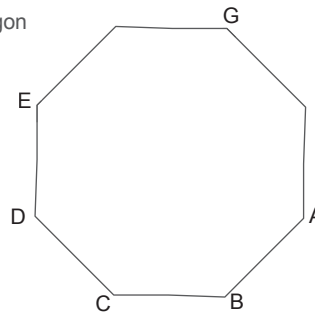
Question 5

CA = 9.0 cm



Question 6

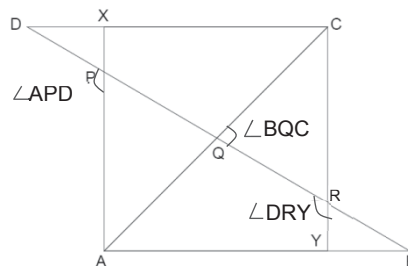
Octagon



Answers to Unit 3.2 – Angles

Let's Practise 3.2

Question 1



Question 2

(a) 100°

(b) 100°

(c) 80°

(d) 80°

(e) 180°

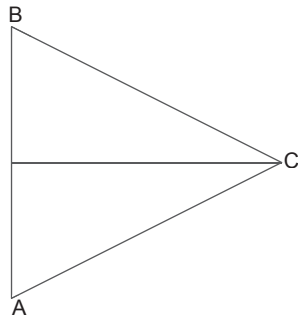
(f) 180°

Question 3

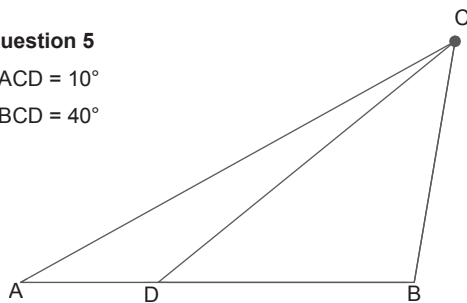
- (a) 200°
 (b) 52°

Question 4

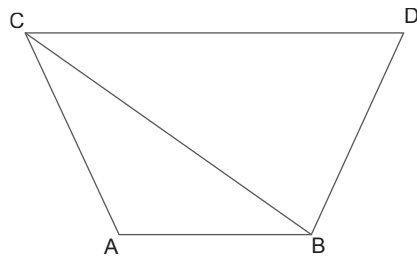
AC = 5.3cm
 BC = 5.3cm

**Question 5**

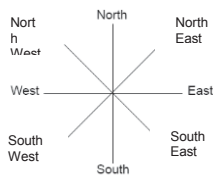
$\angle ACD = 10^\circ$
 $\angle BCD = 40^\circ$

**Question 6**

$\angle BCD = 35^\circ$

**Answers to Unit 3.3 – 8-Point Compass****Let's Get Started**

1.



2. North
 3. South
 4. $\frac{3}{8}$
 5. East
 6. 135°

Let's Learn

- 90° to their right for the school that is on the West.
- The Bakery
- The Market
- 225° turn

Think Further

- 90° to their right for the school that is on the North.
- The Bakery
- The Market
- 315° turn

Let's Practice 3.3**Question 1**

- Home
- Sports hall
- Sports hall
- Club
- $\frac{1}{8}$ – turn to her right / $\frac{7}{8}$ – turn to her left
- $\frac{3}{8}$ – turn to her left / $\frac{5}{8}$ – turn to her right

Question 2

- Toy section
- Electrical section
- $\frac{3}{8}$ – turn to his right / $\frac{5}{8}$ – turn to his left
- Shoes section
- Toy section
- 315°

Question 3

- Art Room, South
- Canteen, Southeast
- Art Room, Northeast
- Basketball Court, Auditorium
- $\frac{3}{8}$ – turn to her right / $\frac{5}{8}$ – turn to her left, East
- 90° anticlockwise turn / 270° clockwise turn.
Northwest

Question 4

- Theatre, West
- Supermarket South
- Temple, Northwest
- MRT station, Temple
- $\frac{5}{8}$ – turn to his right / $\frac{3}{8}$ – turn to his left, South
- 180 clockwise turn to the left / 180 anticlockwise turn to right, Northeast

Question 5

- (a) Dewi
- (b) Barbara, Canns and Ian
- (c) Ian
- (d) Canns, Barbara and Florence

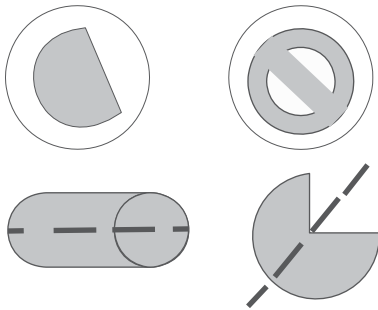
Question 6

- (a) 1 square South, followed by 1 square Southeast
- (b) Fire station

Chapter **4** **Symmetry and Tessellation**

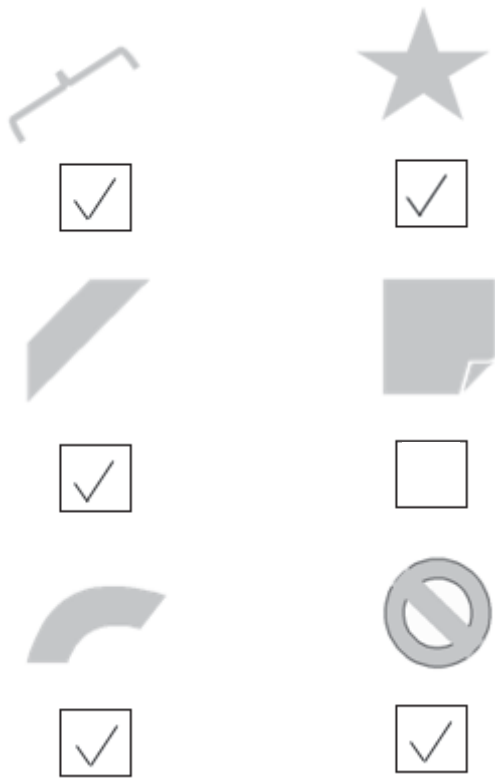
Answers to Unit 4.1 – Identifying Symmetrical

Let's Get Started 4.1

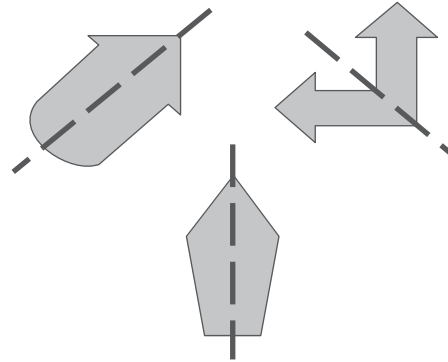


Let's Practise 4.1

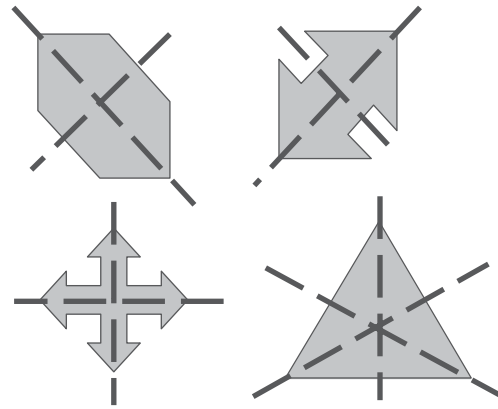
Question 1



Question 2



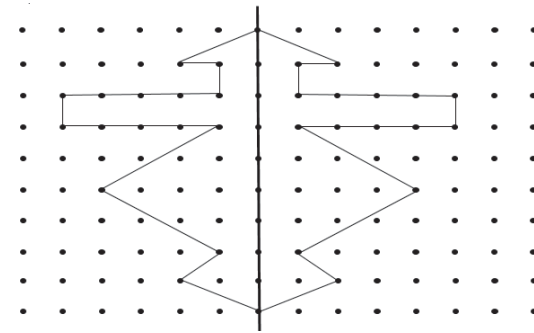
Question 3



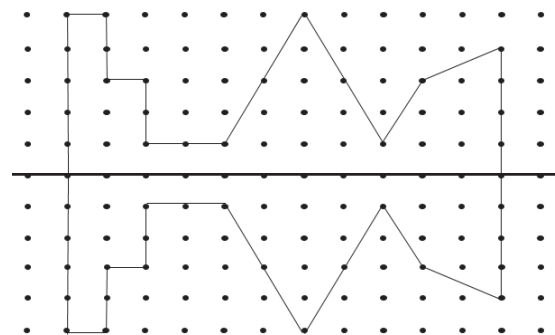
Answers to Unit 4.2 – Forming Symmetrical Figure

Let's Practice 4.2

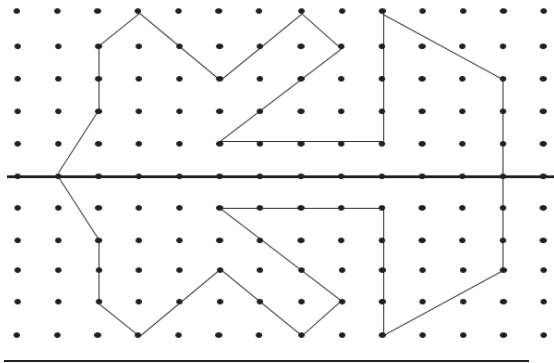
Question 1



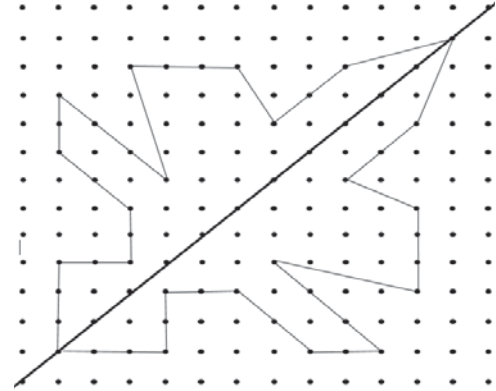
Question 2



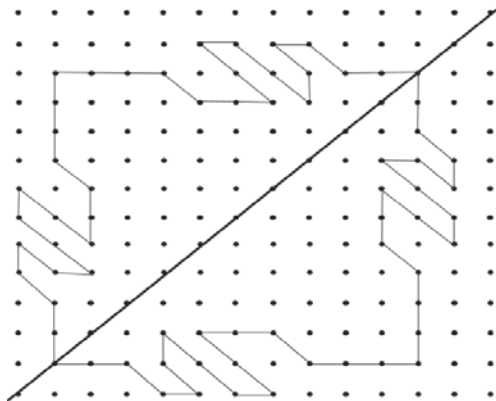
Question 3



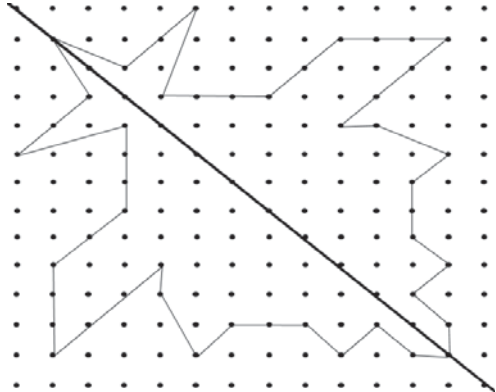
Question 4



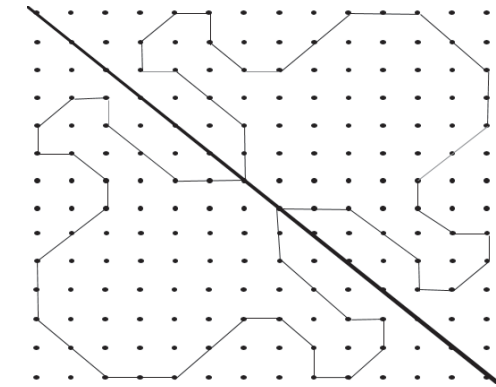
Question 5



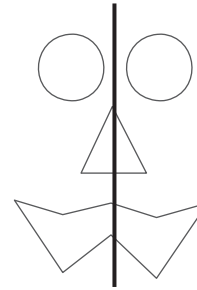
Question 6



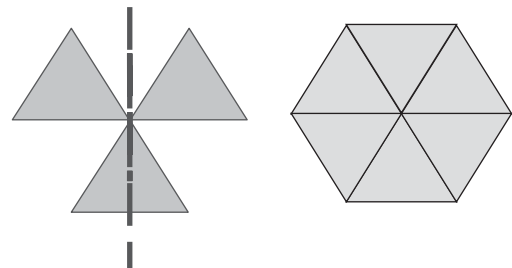
Question 7



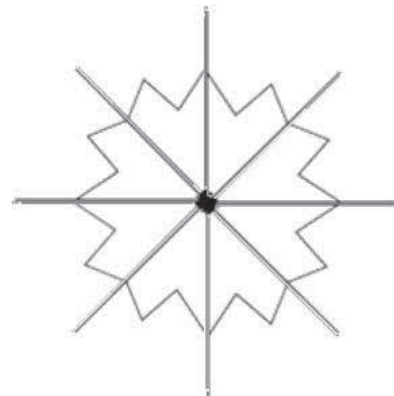
Question 8



Question 9



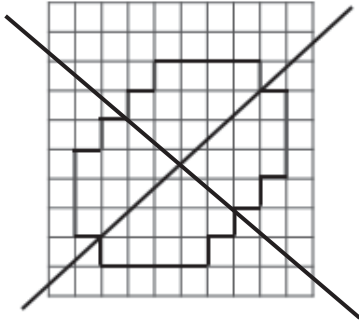
Question 10



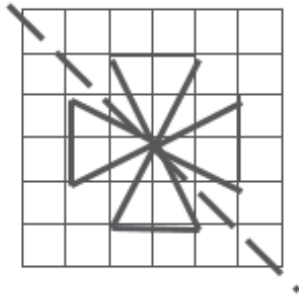
Answers to Unit 4.3 – Symmetry in a Grid

Let's Practice 4.3

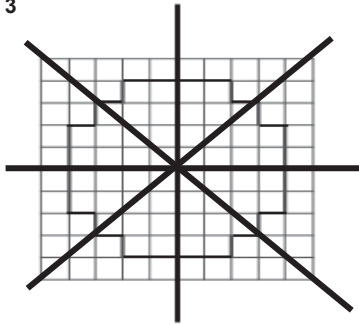
Question 1



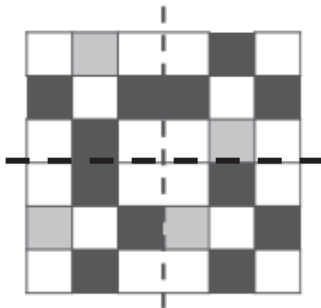
Question 2



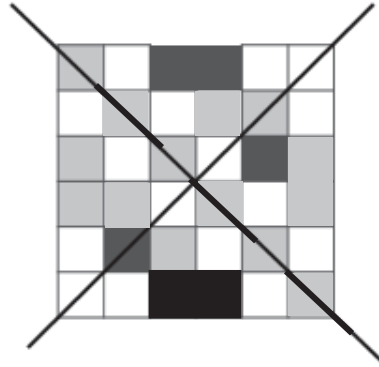
Question 3



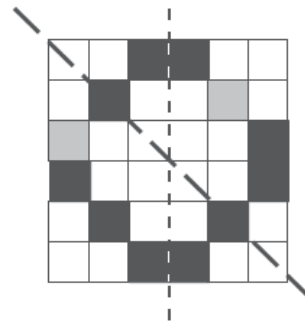
Question 4



Question 5



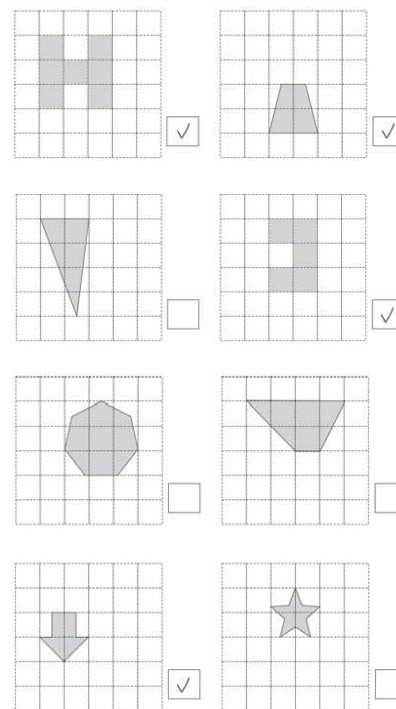
Question 6



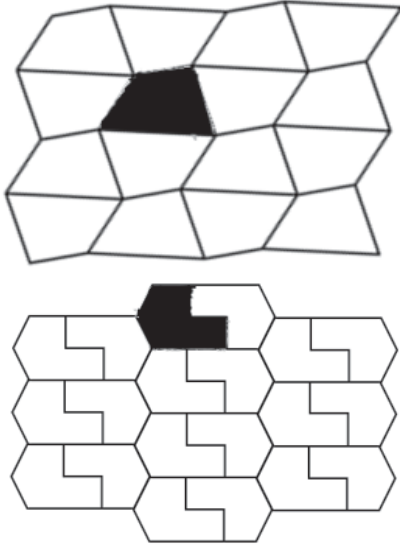
Answers to Unit 4.4 – Tessellation

Let's Practise 4.4

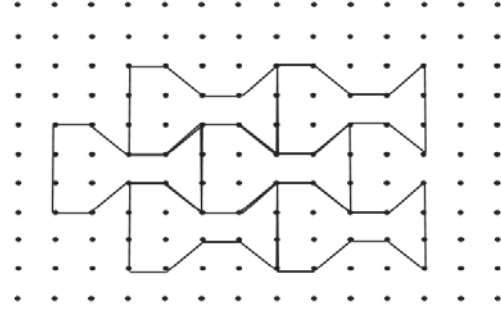
Question 1



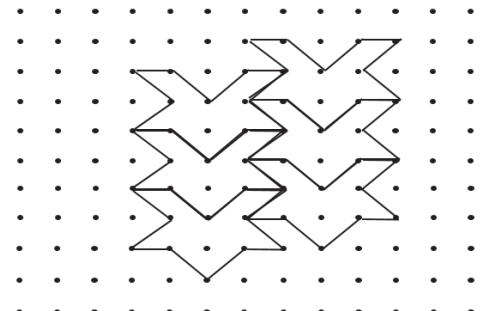
Question 2



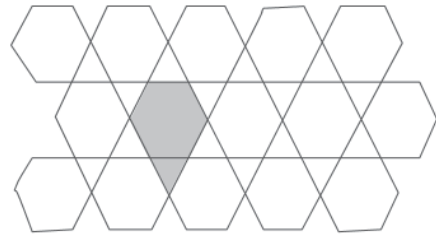
Question 6



Question 7



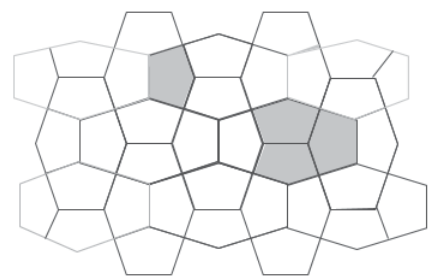
Question 3



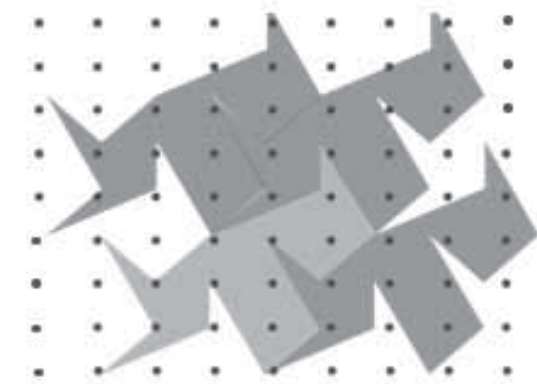
Question 8



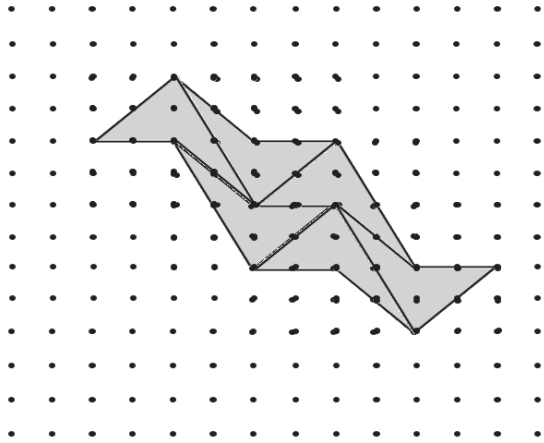
Question 4



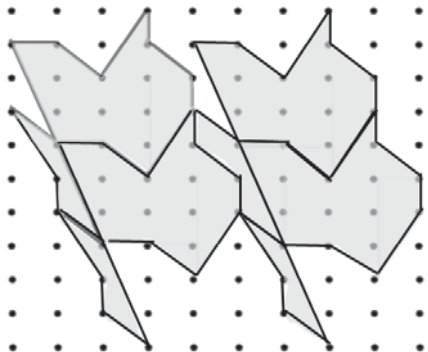
Question 9



Question 5



Question 10



Chapter **5** Decimals

Answers to Unit 5.1 – Decimals

Let's Get Started 5.1

- (a) 6.58 (b) 78.9 (c) 0.079
- (a) 0.7 (b) 0.6 (c) 0.12
- tenth
- hundredth
- 0.5
- 0.8
- (a) 8.3 (b) 16.5 (c) 18.3 (d) 25.0
- (a) 5.26 (b) 25.65 (c) 46.74 (d) 65.28
- 0.325, 0.65, 0.8, 0.91
- (a) 6.853 (b) 4.458

Let's Practise 5.1

Question 1
2.74L

Question 2
\$15.49

Question 3
\$86.0

Question 4
3 m long, 2 m wide

Question 5
3.9kg

Question 6
27.1

Answers to 5.2 Addition and Subtraction of Decimals

Let's Get Started 5.2

- (a) 8.9 (b) 2.49 (c) 7.2 (d) 0.9
(e) 1.29 (f) 123.47
- (a) 2.1 (b) 3.33 (c) 0.05 (d) 8.8

Let's Practise 5.2

Question 1

$\$15.70 + \$2.80 = \$18.50$
The DVD and market cost \$18.50.
 $\$20 - \$18.50 = \$1.50$
He would receive **\$1.50** change.

Question 2

$\$18.50 + \$25.80 + \$28.30 = \72.60
They had a total of \$72.60.
 $\$84 - \$72.60 = \$11.40$
They needed **\$11.40** 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 5.3 Multiplication and Division of Decimals

Let's Get Started 5.3

- (a) 1.8 (b) 3.25 (c) 13.6 (d) 28.56
- (a) 0.23 (b) 1.67 (c) 1.3 (d) 1.225
- (a) 2.5 (b) 7.1 (c) 4.7 (d) 12.5
(e) 27.5 (f) 22.6
- (a) 0.5 (b) 1.1 (c) 0.6 (d) 3.1
(e) 2.6 (f) 1.4

Let's Practise 5.3

Question 1

$\$425.60 \times 6 = \2553.60
His family would receive **\\$2553.60**.

Question 2

$\$5.35 \times 4 = \21.40
Melissa paid **\\$21.40**.

Question 3

$\$65.30 \times 5 = \326.50
He would receive **\\$326.50**.

Question 4

$3.62 \text{ m} \times 7 = 25.34 \text{ m}$
Mrs Lim bought **25.34 m** of carpet.

Question 5

$\$315 \div 7 = \45
His daily wage is **\\$45**.

Question 6

$\$23.40 \div 9 = \2.60
Each hair clip cost **\\$2.60**.

Question 7

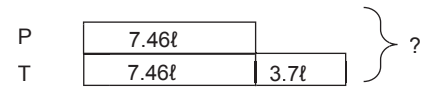
$3.75 \text{ kg} \div 3 = 1.25 \text{ kg}$
Each packet contains **1.25 kg** of sugar.

Question 8

$\$4.80 \times 4 = \19.20
4 notebooks cost $\$19.20$
 $\$55 - \$19.20 = \$35.80$
He had $\$35.80$ left after buying notebooks.
 $\$35.80 - \$21 = \$14.80$
 $\$14.80 \div 8 = \1.85
Each pencil cost **\\$1.85**.

Answers to Review Questions on Decimals

Question 1



$7.46 + 3.7 = 11.16$
The tank can hold 11.16 litres of water.
 $11.16 + 7.46 = 18.62 \approx 18.6 \text{ ℓ}$
Both containers can hold **18.6ℓ** of water.

Question 2

<u>Case 1</u>	}	<u>Summary</u>
T = $4u^{x4}$ (16u)		
B = $5u^{x4}$ (20u)		T = 16u
		B = 20u
<u>Case 2</u>	}	P = 5u
P = $1u^{x5}$ (5u)		Total = $16u + 20u + 5u$
B = $4u^{x5}$ (20u)		= 41u

Difference between batteries and tissue pack
= $20u - 16u$
= $4u$
 $4u = 24$
 $1u = 24 \div 4$
= 6
 $5u = 5 \times 6$
= 30
Heidi bought **30 paper clips**.

Question 3

<u>Case 1</u>	}	<u>Summary</u>
T = $2u^{x3}$ (6u)		
C = $5u^{x3}$ (15u)		T = 6u
		C = 15u
<u>Case 2</u>	}	K = 20u
T = $3u^{x2}$ (6u)		Total = $6u + 15u + 20u$
K = $10u^{x2}$ (20u)		= 41u

Difference between Clair and Timothy = $15u - 6u$
= $9u$
 $9u = 54$
 $1u = 54 \div 9$
= 6
 $20u = 20 \times 6$
= 120
120 books on the shelf belonged to Kristine.

Question 4

Case 1

$A = 3u^{x^{10}}$ (30u)

$B = 2u^{x^{10}}$ (20u)

Case 2

$A = 10u^{x^3}$ (30u)

$C = 7u^{x^3}$ (21u)

Summary

$A = 30u$

$B = 20u$

$C = 21u$

Total = $30u + 20u + 21u$
= 71u

Difference between Pouch B and Pouch C

= $21u - 20u$

= 1u

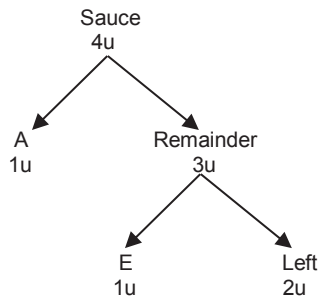
1u = 160

71u = 71×160

= 11 360

The mass of the bag of seeds is **11 kg 360 g**.

Question 5



4u = 10.8

1u = $10.8 \div 4$

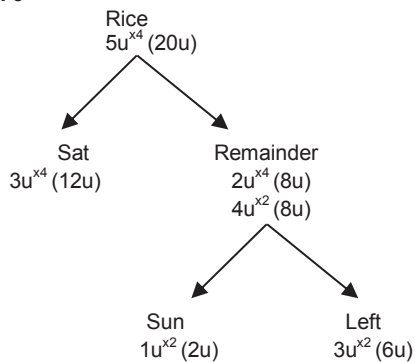
= 2.7

2u = 2×2.7

= 5.4

There were **5.4 litres** of sauce left.

Question 6



6u = 3.9

1u = $3.9 \div 6$

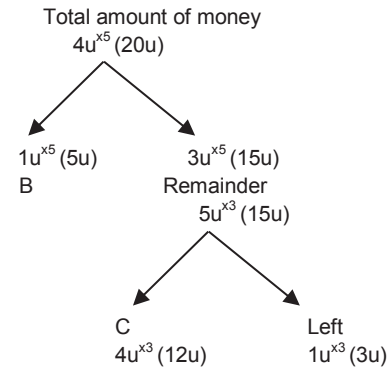
= 0.65

20u = 20×0.65

= 13

He had **13 kg** of rice at first.

Question 7



Difference between computer game and board game

= $12u - 5u$

= 7u

7u = 41.65

1u = $41.65 \div 7$

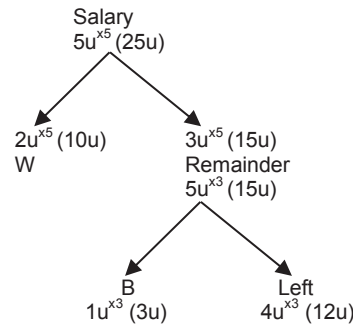
= 5.95

3u = 5.95×3

= 17.85

Caleb had **\$17.85** left.

Question 8



10u = 1840

1u = $1840 \div 10$

= 184

3u = 3×184

= 552

Mr Imran spent **\$552** on bills.

Question 9

3u = 0.48

1u = $0.48 \div 3$

= 0.16

2u = 2×0.16

= 0.32 (Flour)

The mass of each sack of flour is **0.32 kg** and each packet of sugar is **0.16 kg**.

Question 10

Cotton	1u	1u	1u	} 1.8 m
Silk	1u	× 3		

$$2C = 2 \times 3u$$

$$= 6u$$

$$3S = 3 \times 1u$$

$$= 3u$$

$$2C + 3S = 6u + 3u$$

$$= 9u$$

$$9u = 1.8$$

$$1u = 1.8 \div 9$$

$$= 0.2$$

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

Question 11

Item	Quantity of units	×	Value of each unit (\$)	Total Value (\$)
E	4u	×	1.5	6u
F	1u	×	1	1u
Total	5u			7u

$$7u = 14$$

$$1u = 14 \div 7$$

$$= 2$$

$$6u = 6 \times 2$$

$$= 12$$

She paid **\$12** for the egg tarts.

Question 12

Item	Quantity of units	×	Value of each unit (items)	Total Value (items)
S	3u	×	25	75u
P	4u	×	20	80u
Total	7u			155u

$$\text{Difference} = 80u - 75u$$

$$= 5u$$

$$5u = 160$$

$$1u = 160 \div 5$$

$$= 32$$

$$3u = 3 \times 32$$

$$= 96$$

There are **96 boxes of screws**.

Question 13

Item	Quantity of units	×	Value of each item (\$)	Total Value (\$)
R	3u	×	2.5	7.5u
G	2u	×	1.25	2.5u
Total	5u			10u

$$10u = 120$$

$$1u = 120 \div 10$$

$$= 12$$

$$\text{Difference} = 3u - 2u$$

$$= 1u$$

The customer bought **12 more** boxes of red than green lamp bulbs.

Question 14

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

$$3u = 12$$

$$1u = 12 \div 3$$

$$= 4$$

$$6u = 4 \times 6$$

$$= 24$$

Joash used **24 tubes** in all.

Chapter 6 Graphs

Answers to Unit 6.1 – Interpreting Graphs

6.1 Interpreting Graphs

Table 1

- (i) Class 4 Courageous
- (ii) Class 4 Courageous and Class 4 Honesty
- (iii) 158 pupils

Table 2

- (i) 13 girls
- (ii) 57 girls + 75 boys = 132 pupils
- (iii) 0 girls + 5 boys = 5 pupils

Let's Practise 6.1

Question 1

- (a) **625 cups of sugar cane juice**

$$123 + 212 + 112 + 178 = 625$$

- (b) **\$469**

$$179 + 290 = 469$$

- (c) **Stall A and C**

$$\begin{aligned}\text{Stall A} &= 123 + 56 \\ &= 179\end{aligned}$$

$$\begin{aligned}\text{Stall B} &= 212 + 78 \\ &= 290\end{aligned}$$

$$\begin{aligned}\text{Stall C} &= 112 + 67 \\ &= 179\end{aligned}$$

$$\begin{aligned}\text{Stall D} &= 178 + 61 \\ &= 239\end{aligned}$$

- (d) **\$262**

$$56 + 78 + 67 + 61 = 262$$

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

$$262 \times 1 = 262$$

Question 2

- (a) **\$2140**

$$450 + 420 + 420 + 430 + 420 = 2140$$

- (b) **\$30**

$$\text{Total amount (Max)} = 450$$

$$\text{Total amount (Min)} = 420$$

$$\begin{aligned}\text{Difference} &= 450 - 420 \\ &= 30\end{aligned}$$

- (c) **210 plates**

$$420 \div 2 = 210$$

- (d) **70 plates**

$$\text{Number of plates of curry rice sold} = 1u$$

$$\text{Number of plates of duck noodles sold} = 2u$$

$$\text{Total plates sold} = 3u$$

$$210 \div 3 = 70$$

Question 3

- (a) **\$8**

Using Monday data,

$$\text{total tickets sold} = 1300 + 650$$

$$= 1950$$

$$\text{Cost of a ticket} = 15\,600 \div 1950$$

$$= 8$$

Question 3 (Cont.)

- (b) **\$26 800**

$$(750 + 600 + 2000) \times 8 = 26\,800$$

- (c) **\$70 800**

$$32\,000 + 38\,800 = 70\,800$$

- (d) **150 people**

$$\begin{aligned}\text{Total people on Sunday} &= 38\,800 \div 8 \\ &= 4850\end{aligned}$$

$$\text{Total people for Movie A and Movie B (Sun)}$$

$$= 4850 - 3500$$

$$= 1350$$

$$\text{Movie A (Sun)} = 1u$$

$$\text{Movie B (Sun)} = 8u$$

$$9u = 1350$$

$$1u = 1350 \div 9$$

$$= 150$$

- (e) I would replace **Movie A**.

The number of people has decreased to 150.

Missing information from the table,

$$\text{Movie B (Sun)} = 8 \times 150$$

$$= 1200$$

$$\text{Total people on Saturday} = 32\,000 \div 8$$

$$= 4\,000$$

$$\text{Total people for Movie B (Sat)} = 4000 - 2700 - 300$$

$$= 1000$$

Question 4

- (a) **\$5**

Using Laundromat data,

$$\text{Total mass} = 200 + 200 + 150 + 20 = 570$$

For Laundromat, Cost to wash 1 kg of laundry

$$= \frac{\text{Total amount collected}}{\text{Total mass}}$$

$$= \frac{2850}{570}$$

$$= 5$$

- (b) **85 kg**

For Drydays, total mass of laundry

$$= 2\,400 \div 5$$

$$= 480$$

$$\text{Mass of socks (Drydays)} = 480 - 150 - 220 - 100$$

$$= 10$$

$$\text{Total mass of socks (all 5)} = 10 + 20 + 15 + 30 + 10$$

$$= 85$$

Question 4 (Cont.)

(c) **100 kg**

For Evergreen, total mass of laundry
= $1\,750 \div 5$

= 350

Mass of blouses and shirts (Evergreen)

= $350 - 170 - 30$

= 150

Since the mass of blouses is 2 times of the mass of

shirts, mass of blouses is $\frac{2}{3} \times 150 = 100$

(d) **\$15 675**

$(100 + 150 + 150 + 15) \times 5 = 2075$

CleanFast collected a total of \$2075.

$(140 + 270 + 900 + 10) \times 5 = 6600$

QuickSpin collected a total of \$6600.

$2400 + 2850 + 2075 + 1750 + 6600 = 15\,675$

(e) **850 kg**

Most shirts washed = 900

Least shirts washed = 50

Biggest Difference = $900 - 50$

= 850

Question 5

(a) **\$3**

For Edmund, Amount spent on pencils + Amount

spent on erasers + Amount spent on files = \$23.80

$6 \times 0.30 + 2 \times 0.50 + \text{Amount spent on files} = 23.80$

$23.80 - 1.80 - 1.00 = 21$

\$21 was spent on the files.

$21 \div 7 = 3$

(b) **\$33.50**

$5 \times 0.30 + 4 \times 0.50 + 10 \times 3 = 33.50$

(c) **5 files**

For Cathy, Amount spent on pencils + Amount spent

on erasers + Amount spent on files = \$17.90

$17.90 - 2.40 - 0.50 = 15$

She spent \$15 on files.

$15 \div 3 = 5$

Question 5 (Cont.)

(d) **Brian**

Number of files (Brian) = $14 - 11 - 2$
= 1

Brian = $11 \times 0.30 + 2 \times 0.50 + 1 \times 3$
= 7.30

Cathy = $8 \times 0.30 + 1 \times 0.50 + 5 \times 3$
= 17.90

(e) **\$98.10**

Abel = $17 \times 0.30 + 3 \times 0.50 + 3 \times 3$
= 15.60

$15.60 + 7.30 + 17.90 + 33.50 + 23.80 = 98.10$

Answers to Unit 6.2 – Line Graphs**Let's Practise 6.2****Question 1**

(a) **9 a.m.**

(b) **6 a.m.**

(c) **5200 cars**

Number of cars from 6 a.m. to 11 a.m.

= $100 + 500 + 1300 + 1700 + 900 + 700$

= 5200

(d) **7 a.m. to 8 a.m.**

(e) **10 a.m. to 11 a.m.**

Question 2

(a) **134**

(b) **May**

(c) **Jan to Feb, Feb to Mar**

Jan to Feb = increase by 22

Feb to Mar = increase by 22

Mar to Apr = decrease by 27

Apr to May = increase by 72

May to June = decrease by 25

(d) **908**

$112 + 134 + 156 + 129 + 201 + 176 = 908$

(e) **April**

Question 3

(a) **14°C**

(b) **20°C**

(c) **7:30 a.m.**

(d) **30 minutes**

When temperature = 14°C, Time is 7.40 a.m.

Question 3 (Cont.)

When temperature = 20°C, Time is 8.10 a.m.

$$\begin{aligned}\text{Elapsed time} &= 10 + 20 \\ &= 30\end{aligned}$$

- (e) **13.5°C**
 $21.5^\circ\text{C} - 8^\circ\text{C} = 13.5^\circ\text{C}$

Question 4

- (a) **270 litres**
- (b) **230 litres**
Amount of water at 10 a.m. – Amount of water at 9 a.m. = 450 – 220 = 230
- (c) **12.30 p.m.**
- (d) **4 h 30 min**
1st time at 285 litres, time is 7 a.m.
2nd time at 285 litres, Time is 11:30 a.m.
Elapsed time is 4 h 30 min.
- (e) **10 a.m. to 11 a.m., 12 noon to 1 p.m.**
7 a.m. to 8 a.m. (decrease by 15 litres)
8 a.m. to 9 a.m. (decrease by 50 litres)
9 a.m. to 10 a.m. (increase by 230 litres)
10 a.m. to 11 a.m. (decrease by 130 litres)
11 a.m. to 12 noon. (decrease by 70 litres)
12 noon to 1 p.m. (decrease by 130 litres)

Question 5

- (a) **1700 houses**
Increase from 2008 to 2009 = 1200 – 1100
= 100
Increase from 2009 to 2010 = 5 × 100
= 500
Number of private houses sold in 2010
= 1200 + 500 = 1700
- (b) **2000 houses**
Number of private houses sold in 2011
= 2 × number of private houses sold in 2012
= 2 × 1000
= 2000
- (c) **Years 2009 and 2013**
2008 = 1100
2009 = 1200
2010 = 1700
2011 = 2000
2012 = 1000
2013 = 1200

Question 5 (Cont.)

- (d) **5900 houses**
Total number of houses (2010 to 2013)
= 1700 + 2000 + 1000 + 1200
= 5900

Question 6

- (a) **00:00:06**
- (b) **8 m**
- (c) **00:00:08**
- (d) **10 seconds**
1st time ball is at 7 m – 00:00:04
2nd time ball is at 7 m – 00:00:14
Time elapsed = 14 – 4
= 10
- (e) **8 seconds**
Ball is at 0m – 00:00:08
Ball increases height to 7.5m – 00:00:16
Time elapsed = 16 – 8
= 8s
- (f) **15.5 m**
The ball falls from 10m to ground (00:00:08) = 10 m
The ball bounces from ground to 5.5m (00:00:12)
= 5.5 m
Total = 10 + 5.5
= 15.5

Chapter 7 Area and Perimeter

Answers to Unit 7.1

Let's Practise 7.1

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**

Question 1 (Cont.)

(c) Area of Rectangle C = $17 \text{ m} \times 9 \text{ m}$
 $= 153 \text{ m}^2$
 Perimeter of Rectangle C
 $= 17 \text{ m} + 9 \text{ m} + 17 \text{ m} + 9 \text{ m}$
 $= 52 \text{ m}$

Question 2

(a) Length of Square A = $2 \times 6 \text{ cm}$
 $= 12 \text{ cm}$
 Perimeter of Square A = $4 \times 12 \text{ cm}$
 $= 48 \text{ cm}$
 Area of Square A = $12 \text{ cm} \times 12 \text{ cm}$
 $= 144 \text{ cm}^2$

(b) Length of Rectangle B = $2 \times 11 \text{ cm}$
 $= 22 \text{ cm}$
 Breadth of Rectangle B = $2 \times 2 \text{ cm}$
 $= 4 \text{ cm}$

Perimeter of Rectangle B
 $= 22 \text{ cm} + 4 \text{ cm} + 22 \text{ cm} + 4 \text{ cm}$
 $= 52 \text{ cm}$
 Area of Rectangle B = $22 \text{ cm} \times 4 \text{ cm}$
 $= 88 \text{ cm}^2$

Question 3

Area of the unpaved region = $14 \text{ m} \times 14 \text{ m}$
 $= 196 \text{ m}^2$
 Perimeter of pavement
 $= 16 \text{ m} + 16 \text{ m} + 2 \text{ m} + 2 \text{ m} + 14 \text{ m} + 14 \text{ m}$
 $= 64 \text{ m}$

Question 4

(a) $2 \times$ length of field = $20 \text{ m} + 20 \text{ m}$
 $= 40 \text{ m}$
 $2 \times$ breadth of field = $64 \text{ m} - 40 \text{ m}$
 $= 24 \text{ m}$
 Breadth of field = $24 \text{ m} \div 2$
 $= 12 \text{ m}$
 The breadth of the field is **12 m**.

Question 2 (Cont.)

(b) Perimeter of garden = $64 \text{ m} \div 2$
 $= 32 \text{ m}$
 Length of garden = $32 \text{ m} \div 4$
 $= 8 \text{ m}$
 Area of garden = $8 \text{ m} \times 8 \text{ m}$
 $= 64 \text{ m}^2$
 The area of the garden is **64 m²**.

Question 5

Length of CD = $2u$.
 Distance covered walked by the ant = $2u + 2u + 1u$
 $= 5u$
 $5u = 37.5$
 $1u = 37.5 \div 5$
 $= 7.5$
 $2u = 2 \times 7.5$
 $= 15$
 The length of the paper is **15 cm**.

(a) $15 \text{ cm} \times 15 \text{ cm} = 225 \text{ cm}^2$
 The area of the paper is **225 cm²**.

(b) $4 \times 15 \text{ cm} = 60 \text{ cm}$
 The perimeter of the paper is **60 cm**.

Question 6

Let the length of each square be $1u$.
 Total length of wire = $1u + 3u + 1u + 3u$
 $= 8u$
 $8u = 96$
 $1u = 96 \div 8$
 $= 12$

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

(b) $3u = 3 \times 12$
 $= 36$
 $36 \text{ cm} \times 12 \text{ cm} = 432 \text{ cm}^2$
 The area of Rectangle ABCD is **432 cm²**.

Answers to Unit 7.2

Let's Practise 7.2

Question 1

(a)

Area of Square A = $1u \times 1u$

$1u \times 1u = 49 (7 \times 7)$

$1u = 7$

Length of Square A = **7 cm**

Perimeter of Square A = $4 \times 7 \text{ cm}$
= **28 cm**

(b)

Length of Rectangle B = $84 \text{ m}^2 \div 8 \text{ m}$
= **10.5 m**

Perimeter of Rectangle B = $(10.5 \text{ m} \times 2) + (8 \text{ m} \times 2)$
= **37 m**

(c)

Area of Square C = $1u \times 1u$

$1u \times 1u = 25 (5 \times 5)$

$1u = 5$

Length of Square C = **5 cm**

Perimeter of Square C = $4 \times 5 \text{ cm}$
= **20 cm**

Question 2

(a)

$2 \times \text{breadth} = 2 \times 14 \text{ cm}$
= **28 cm**

$2 \times \text{length} = 78 \text{ cm} - 28 \text{ cm}$
= **50 cm**

Length of Rectangle D = $50 \text{ cm} \div 2$
= **25 cm**

Area of Rectangle D = $25 \text{ cm} \times 14 \text{ cm}$
= **350 cm²**

(b)

Length of Square E = $24 \text{ cm} \div 4$
= **6 cm**

Area of Square E = $6 \text{ cm} \times 6 \text{ cm}$
= **36 cm²**

(c)

$2 \times \text{breadth} = 2 \times 17 \text{ cm}$
= **34 cm**

$2 \times \text{Length} = 92 \text{ cm} - 34 \text{ cm}$
= **58 cm**

Length of Rectangle F = $58 \text{ cm} \div 2$
= **29 cm**

Area of Rectangle F = $29 \text{ cm} \times 17 \text{ cm}$
= **493 cm²**

Question 3

Length of wire = $80 \text{ cm} + 60 \text{ cm} + 80 \text{ cm} + 60 \text{ cm}$
= **280 cm**

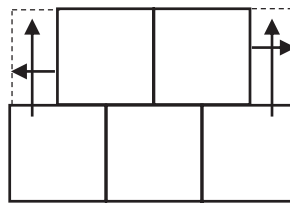
Length of each side of square = $280 \text{ cm} \div 7$
= **40 cm**

The length of each side of the square is **40 cm**.

Question 4

Area of one square = $80 \text{ cm}^2 \div 5$
= **16 cm²**

Length of each square = **4 cm**



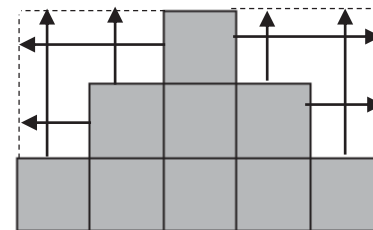
$12 \text{ cm} + 12 \text{ cm} + 8 \text{ cm} + 8 \text{ cm} = 40 \text{ cm}$

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

Question 5

Area of each identical squares = $81 \text{ cm}^2 \div 9 = 9 \text{ cm}^2$

Length of each identical square = **3 cm**



$15 \text{ cm} + 15 \text{ cm} + 9 \text{ cm} + 9 \text{ cm} = 48 \text{ cm}$

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

Question 6

$B = 4u$

$A = 1u$

$D = 4u^4 (16u)$

$B = 1u^4 (4u)$

$C = 9u$

$A = 1u$

Summary

$A = 1u$

$B = 4u$

$C = 9u$

$D = 16u$

Area of Square A = $4 \text{ cm} \times 4 \text{ cm}$
= **16 cm² (1u)**

Question 6 (cont.)

$$\begin{aligned} \text{Area of Square B} &= 4 \times 16 \text{ cm}^2 \\ &= 64 \text{ cm}^2 \end{aligned}$$

$$\text{Length of Square B} = 8 \text{ cm}$$

$$\begin{aligned} \text{Area of Square C} &= 9 \times 16 \text{ cm}^2 \\ &= 144 \text{ cm}^2 \end{aligned}$$

$$\text{Length of Square C} = 12 \text{ cm}$$

$$\begin{aligned} \text{Area of Square D} &= 16 \times 16 \text{ cm}^2 \\ &= 256 \text{ cm}^2 \end{aligned}$$

$$\text{Length of Square D} = 16 \text{ cm}$$

$$\begin{aligned} \text{Perimeter of Square A} &= 4 \times 4 \text{ cm} \\ &= 16 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Perimeter of Square B} &= 4 \times 8 \text{ cm} \\ &= 32 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Perimeter of Square C} &= 4 \times 12 \text{ cm} \\ &= 48 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Perimeter of Square D} &= 4 \times 16 \text{ cm} \\ &= 64 \text{ cm} \end{aligned}$$

$$16 \text{ cm} + 32 \text{ cm} + 48 \text{ cm} + 64 \text{ cm} = 160 \text{ cm}$$

The length of wire is **160 cm**.

Answers to Unit 7.3**Let's Practise 7.3****Question 1**

When Johan walked at the centre of the path, you will need to add 1 m around the perimeter of the park.

$$\begin{aligned} \text{Perimeter of park} &= 30 \text{ m} + 40 \text{ m} + 30 \text{ m} + 40 \text{ m} \\ &= 140 \text{ m} \end{aligned}$$

$$31 \text{ m} + 41 \text{ m} + 31 \text{ m} + 41 \text{ m} = 144 \text{ m}$$

Johan walked a total distance of **144 m**.

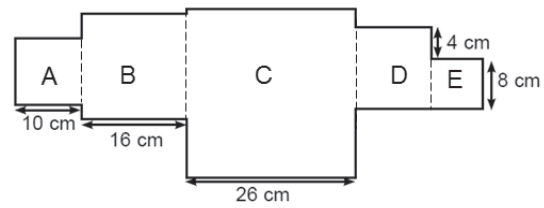
Question 2

$$\begin{aligned} \text{Length of figure} &= 10 \text{ cm} + 16 \text{ cm} + 26 \text{ cm} + 12 \text{ cm} + 8 \text{ cm} \\ &= 72 \text{ cm} \end{aligned}$$

$$\text{Breadth of figure} = 26 \text{ cm}$$

$$72 \text{ cm} + 26 \text{ cm} + 72 \text{ cm} + 26 \text{ cm} = 196 \text{ cm}$$

The perimeter of the figure is **196 cm**.

Question 2 (cont.)

(from left)

$$\begin{aligned} \text{Area of Square A} &= 10 \text{ cm} \times 10 \text{ cm} \\ &= 100 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Area of Square B} &= 16 \text{ cm} \times 16 \text{ cm} \\ &= 256 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Area of Square C} &= 26 \text{ cm} \times 26 \text{ cm} \\ &= 676 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Area of Square D} &= 12 \text{ cm} \times 12 \text{ cm} \\ &= 144 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Area of Square E} &= 8 \text{ cm} \times 8 \text{ cm} \\ &= 64 \text{ cm}^2 \end{aligned}$$

Total area of figure

$$\begin{aligned} &= 100 \text{ cm}^2 + 256 \text{ cm}^2 + 676 \text{ cm}^2 + 144 \text{ cm}^2 + 64 \text{ cm}^2 \\ &= \mathbf{1240 \text{ cm}^2} \end{aligned}$$

The area of the figure is **1 240 cm²**.

Question 3

Area of land used for strawberries

$$= 9 \text{ m} \times 18 \text{ m}$$

$$= 162 \text{ m}^2$$

Area of land used for herbs = $5 \text{ m} \times 5 \text{ m}$

$$= 25 \text{ m}^2$$

Total area of land used = $162 \text{ m}^2 + 25 \text{ m}^2$

$$= 187 \text{ m}^2$$

Area of plot of land = $28 \text{ m} \times 25 \text{ m}$

$$= 700 \text{ m}^2$$

Area of plot of land still not used

$$= 700 \text{ m}^2 - 187 \text{ m}^2$$

$$= 513 \text{ m}^2$$

513 m² of the plot of land is still unused.

Question 4

$$\begin{aligned} \text{Area of 1 rectangle} &= 600 \text{ cm}^2 \div 8 \\ &= 75 \text{ cm}^2. \end{aligned}$$

Length	Breadth	Area	Check
3 cm	1 cm	3 cm ²	X
6 cm	2 cm	12 cm ²	X
9 cm	3 cm	27 cm ²	X
12 cm	4 cm	48 cm ²	X
15 cm	5 cm	75 cm ²	✓

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

The perimeter of the figure is **100 cm**.

Question 5

Area of one of the rectangles = 20 m \times 10 m = **200 m²**

Question 6

Area of large rectangle = 10 cm \times 6 cm

= 60 cm²

Area of overlapped 4 squares = 4×1 cm²

= 4 cm²

Area of shaded region = 60 cm² - 4 cm² - 4 cm²

= 52 cm²

The area of the shaded region is **52 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 cm ²	36	2	x
72 cm ²	18	4	x
72 cm ²	12	6	✓

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

= 24 m

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

= 10 m

Area of park = 24 m \times 10 m

= 240 m²

Area of shaded region = 240 m² - 72 m²

= 168 m²

The area of shaded region is **168 m²**.

Question 8

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

Area of park	Length	Breadth	Difference	Check
63 m ²	63	1	62	x
63 m ²	21	3	18	x
63 m ²	9	7	2	✓

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 \times 11 m

= 143 m²

Area of pavement = 143 m² - 63 m²

= 80 m²

The area of the pavement is **80 m²**.

Question 9

Area of shaded region = 3 shaded squares

3 squares = 48

1 square = $48 \div 3$

= 16

Length of square A = 4 cm

Length of square B = 2×4 cm

= 8 cm

The length of square A and square B is **4 cm** and **8 cm**

respectively.

Question 10

(a) Total distance travelled

= 4 cm + 2 cm + 2 cm + 2 cm + 4 cm + 2 cm +

4 cm + 2 cm = 22 cm

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

(b) Area of 1st step = 14 cm \times 2 cm

= 28 cm²

Area of 2nd step = 10 cm \times 2 cm

= 20 cm²

Area of 3rd step = 6 cm \times 2 cm

= 12 cm²

Area of 4th step = 4 cm \times 2 cm

= 8 cm²

Total area of the shaded region

= 28 cm² + 20 cm² + 12 cm² + 8 cm²

= 68 cm²

The area of the shaded region is **68 cm²**.

Question 11

$$\begin{aligned} \text{Length of 2 strokes} &= 20 \text{ cm} - 14 \text{ cm} \\ &= 6 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Perimeter} \\ &= 30 \text{ cm} + 20 \text{ cm} + 30 \text{ cm} + 20 \text{ cm} + 6 \text{ cm} + 6 \text{ cm} \\ &= 112 \text{ cm} \end{aligned}$$

The perimeter of the figure is **112 cm**.

$$\begin{aligned} \text{Area of figure} \\ &= (30 \text{ cm} \times 14 \text{ cm}) + (6 \text{ cm} \times 5 \text{ cm}) + (7 \text{ cm} \times 6 \text{ cm}) \\ &= 492 \text{ cm}^2 \end{aligned}$$

The area of the figure is **492 cm²**.

Question 12

$$\begin{aligned} \text{Perimeter of figure} \\ &= 30 \text{ cm} + 25 \text{ cm} + 30 \text{ cm} + 25 \text{ cm} \\ &= 110 \text{ cm} \end{aligned}$$

The perimeter of the figure is **110 cm**.

$$\begin{aligned} \text{Length of 2 strokes} &= (25 \text{ cm} - 15 \text{ cm}) \div 2 \\ &= 5 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Length of 3 strokes} &= 30 \text{ cm} \div 3 \\ &= 10 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Area of the figure} \\ &= (25 \text{ cm} \times 10 \text{ cm}) + (10 \text{ cm} \times 10 \text{ cm}) + (10 \text{ cm} \times 5 \text{ cm}) \\ &= 400 \text{ cm}^2 \end{aligned}$$

The area of the figure is **400 cm²**.

Question 13

$$\begin{aligned} \text{Length of UV} &= 290 \text{ m} - 30 \text{ m} = 260 \text{ m} \\ \text{Area of furniture department} &= 260 \text{ m} \times 30 \text{ m} \\ &= 7800 \text{ m}^2 \end{aligned}$$

The area of the furniture department is **7800 m²**.

Question 14

(a) Length of Square D = 3 cm
 Length of Square F = $15 \text{ cm}^2 \div 3 \text{ cm}$
 $= 5 \text{ cm}$
 The length of Square F is **5 cm**.

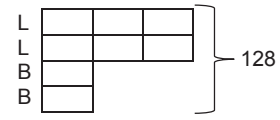
(b) Area of E = $3 \text{ cm} \times 5 \text{ cm}$
 $= 15 \text{ cm}^2$
 The area of E is **15 cm²**.

Answers to Unit 7.4**Let's Practise 7.4****Question 1**Unitary approach

$$\begin{aligned} L &\rightarrow 3u \\ L &\rightarrow 3u \end{aligned}$$

$$\begin{aligned} B &\rightarrow 1u \\ B &\rightarrow 1u \end{aligned}$$

$$\text{Total} \rightarrow 8u$$



Each rectangle has – 2 lengths
 – 2 breadths

$$8u = 128$$

$$\begin{aligned} \text{(B) } 1u &= 128 \div 8 \\ &= 16 \end{aligned}$$

$$\begin{aligned} \text{(L) } 3u &= 16 \times 3 \\ &= 48 \end{aligned}$$

$$\begin{aligned} \text{Area of rectangle} &= 16 \times 48 \\ &= 768 \end{aligned}$$

The area of the rectangle is **768 cm²**.

Question 2

Let the length of Square A = 1u

$$1u = 2 \text{ cm}$$

$$\begin{aligned} \text{Length of Rectangle B} &= 8u \\ &= 8 \times 2 \text{ cm} \\ &= 16 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Breadth of Rectangle B} &= 4u \\ &= 4 \times 2 \text{ cm} \\ &= 8 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Perimeter of Rectangle B} &= 16 + 16 + 8 + 8 \\ &= 48 \end{aligned}$$

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

Question 3Perimeter

$$\text{Sq} = 2u^2 (4u)$$

$$\text{Rec} = 7u^2 (14u)$$

Rectangle

$$B = 3u$$

$$L = 4u$$

$$\begin{aligned} \text{Total Perimeter} &= 7u + 7u \\ &= 14u \end{aligned}$$

$$\text{Area of sq} = 100 \text{ cm}^2$$

$$1 \text{ side of sq} = 10 \text{ cm}$$

$$\begin{aligned} \text{Perimeter of sq (4u)} &= 10 + 10 + 10 + 10 \\ &= 40 \end{aligned}$$

Question 3 (Cont.)

$$1u = 40 \div 4$$

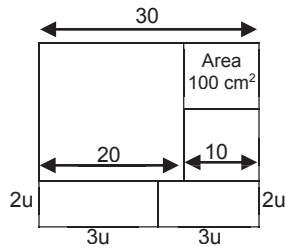
$$= 10$$

$$\text{Breadth of rectangle } (3u) = 3 \times 10$$

$$= 30$$

The breadth of rectangle is **30 cm**.

Question 4



$$\text{Area of 1 small square} = 100 \text{ cm}^2$$

$$\text{Length of 1 small square} = 10 \text{ cm}$$

$$\text{Length of 1 big square} = 10 \text{ cm} + 10 \text{ cm}$$

$$= 20 \text{ cm}$$

$$\text{Length of figure} = 10 \text{ cm} + 20 \text{ cm}$$

$$= 30 \text{ cm}$$

$$\text{Length of 1 rectangle} = 30 \text{ cm} \div 2$$

$$= 15 \text{ cm}$$

$$\text{Length of 1 rectangle} = 3u$$

$$3u = 15 \text{ cm}$$

$$1u = 15 \text{ cm} \div 3$$

$$= 5 \text{ cm}$$

$$\text{Breadth of 1 rectangle} = 2u$$

$$2u = 5 \text{ cm} \times 2$$

$$= 10 \text{ cm}$$

$$\text{Area of 1 rectangle} = 15 \text{ cm} \times 10 \text{ cm}$$

$$= 150 \text{ cm}^2$$

$$\text{Area of 1 big square} = 20 \text{ cm} \times 20 \text{ cm}$$

$$= 400 \text{ cm}^2$$

$$\text{Area of figure} = 100 + 100 + 400 + 150 + 150$$

$$= 900$$

The area of the figure is **900 cm²**.

Question 5

$$5u \times 3u = 135$$

Factors of 135. Guess & Check

Area of Rectangle	L	B	Check
135 cm ²	45	3	✗
135 cm ²	27	5	✗
135 cm ²	15	9	✓

$$\text{Perimeter} = 15 \text{ cm} + 15 \text{ cm} + 9 \text{ cm} + 9 \text{ cm}$$

$$= 48 \text{ cm}$$

The perimeter of the figure is **48 cm**.

Question 6

ABCD

$$B = 6u$$

$$L = 6u$$

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
B = 2u L = 2u	B = 2u L = 4u	B = 2u L = 4u	B = 4u L = 4u	B = 1u L = 1u

$$\text{Breadth } (C + D) = 2u + 4u$$

$$= 6u$$

$$\text{Length } (C + A) = 4u + 2u$$

$$= 6u$$

$$\text{Perimeter } E = 24 \text{ cm}$$

$$(1u) \text{ breadth of } E = 24 \text{ cm} \div 4$$

$$= 6 \text{ cm}$$

$$(a) 1u = 6 \text{ cm}$$

$$6u = 6 \times 6 \text{ cm}$$

$$= 36 \text{ cm}$$

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

$$(b) \text{ Breadth of } B (2u) = 2 \times 6 \text{ cm}$$

$$= 12 \text{ cm}$$

$$\text{Length of } B (4u) = 4 \times 6 \text{ cm}$$

$$= 24 \text{ cm}$$

$$\text{Area of } B = 12 \text{ cm} \times 24 \text{ cm}$$

$$= 288 \text{ cm}^2$$

The area of B is **288 cm²**.

Answers to Unit 7.5

Let's Practise 7.5

Question 1

A	B	Total	Check
$7 \times 7 = 49$	$10 \times 10 = 100$	$49 + 100 = 149$	✗
$8 \times 8 = 64$	$11 \times 11 = 121$	$64 + 121 = 185$	✗
$9 \times 9 = 81$	$12 \times 12 = 144$	$81 + 144 = 225$	✓

$$\text{Perimeter} = 9 + 9 + 9 + 3 + 12 + 12 + 12 + 6$$

$$= 27 + 3 + 36 + 6$$

$$= 72$$

The perimeter is **72 cm**.

Question 2

Area of small sq	Area of big sq	Difference (Shaded area)	Check
$6 \times 6 = 36$	$8 \times 8 = 64$	$64 - 36 = 28$	✗
$4 \times 4 = 16$	$6 \times 6 = 36$	$36 - 16 = 20$	✓

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

Question 3

Area of small sq	Area of big sq	Difference (Shaded area)	Check
$8 \times 8 = 64$	$10 \times 10 = 100$	$100 - 64 = 36$	✘
$9 \times 9 = 81$	$11 \times 11 = 121$	$121 - 81 = 40$	✓

Perimeter of big square = $11 \text{ cm} \times 4$
 $= 44 \text{ cm}$

The perimeter of the big square is **44 cm**.

Question 4

Total area of Square A + Square B
 $= 176 \text{ cm}^2 + 9 \text{ cm}^2 + 9 \text{ cm}^2$
 $= 194 \text{ cm}^2$

Area of A	Area of B	Unshaded region	Check
$7 \times 7 = 49$	$15 \times 15 = 225$	$225 + 49 = 274$ $274 - 9 - 9 = 256$	✘
$6 \times 6 = 36$	$14 \times 14 = 196$	$196 + 36 = 232$ $232 - 9 - 9 = 214$	✘
$5 \times 5 = 25$	$13 \times 13 = 169$	$169 + 25 = 194$ $194 - 9 - 9 = 176$	✓

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

Question 5

Guess & Check, Factors of 24

Length	Breadth	Total Perimeter	Check
$12 \times 2 = 24$	$2 \times 2 = 4$	$24 + 4 = 28$ $28 \times 2 = 56$	✘
$8 \times 2 = 16$	$3 \times 2 = 6$	$16 + 6 = 22$ $22 \times 2 = 44$	✘
$6 \times 2 = 12$	$4 \times 2 = 8$	$12 + 8 = 20$ $20 \times 2 = 40$	✓

4 squares wide

6 squares long

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