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CONQUER PROBLEM SUMS

- Proven strategies used by top performing schools to conquer problem sums
- Based on latest MOE syllabus
- Challenging questions to excel in Upper Primary

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Answer Booklet

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4

Primary



P4 Solutions

Note: In all solutions, u represents Units

Chapter 1 Whole Numbers

Unit 1.1 – Divisibility Test

Qn 1

- (a) 431 and 569 (b) 712 and 611 (c) 342
(d) 324 and 521 (e) 441 and 621

Unit 1.2 – Divisor, Quotient and Remainder

Qn 1

$\begin{array}{r} 616 \\ \hline 7 \overline{)4317} \\ -42 \\ \hline 11 \\ -7 \\ \hline 47 \\ -42 \\ \hline 5 \end{array}$	$\begin{array}{r} 279 \\ \hline 9 \overline{)2513} \\ -18 \\ \hline 71 \\ -63 \\ \hline 83 \\ -81 \\ \hline 2 \end{array}$	$\begin{array}{r} 664 \\ \hline 8 \overline{)5316} \\ -48 \\ \hline 51 \\ -48 \\ \hline 36 \\ -32 \\ \hline 4 \end{array}$
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Quotient = 616 Quotient = 279 Quotient = 664
Remainder = 5 Remainder = 2 Remainder = 4

Qn 4

$$12 \times 6 + 5 = 72 + 5 = 77$$

Qn 5

$$123 \times 8 + 2 = 984 + 2 = 986$$

Qn 6

$$104 \times 9 + 6 = 936 + 6 = 942$$

Qn 7

$$113 \times 4 + 3 = 452 + 3 = 455$$

Qn 8

$$203 \times 7 + 6 = 1421 + 6 = 1427$$

Qn 9

$$\begin{aligned} 14 \times 8 + 6 &= 118 \\ 12 \times 10 &= 120 \\ 120 - 118 &= 2 \text{ more chairs} \end{aligned}$$

Qn 10

$434 \div 8 = 54$ remainder 2
Total she needs = 55 packets
 $55 \times \$2 = \110
Miss Tan would need \$110.

Qn 11

$40 \times 6 = 240$
 $240 \div 14 = 17$ packets with 2 remainders
Total packets needed = 18 packets

Unit 1.3 – Highest Common Factor (HCF)

Qn 1

Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24
Factors of 40: 1, 2, 4, 5, 8, 10, 20, 40
Common factors of 24 and 40 are 1, 2, 4 and 8.
Highest common factor of 24 and 40 is 8.

Qn 2

Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36
Factors of 60: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60
Common factors of 36 and 60 are 1, 2, 3, 4, 6 and 12.
Highest common factor of 36 and 60 is 12.

Qn 3

Factors of 45: 1, 3, 5, 9, 15, 45
Factors of 80: 1, 2, 4, 5, 8, 10, 16, 20, 40, 80
Common factors of 45 and 80 are 1 and 5.
Highest common factor of 45 and 80 is 5.

Qn 4

Factors of 16: 1, 2, 4, 8, 16
Factors of 40: 1, 2, 4, 5, 8, 10, 20, 40
Common factors of 16 and 40 are 1, 2, 4 and 8.
Highest common factor of 16 and 40 is 8.

Qn 5

Factors of 90: 1, 2, 3, 5, 6, 9, 10, 15, 18, 30, 45, 90
Factors of 75: 1, 3, 5, 15, 25, 75
Common factors of 75 and 90 are 1, 3, 5 and 15.
Highest common factor of 75 and 90 is 15.

Unit 1.4 – Distribution involving Multiplication and Division

Qn 1 9 Qn 2 7 Qn 3 14 Qn 4 20
Qn 5 32 Qn 6 18 Qn 7 10

Unit 1.5 – Word Problems involving Common Factors

Qn 1

2	40 48	(a) Maximum number of bags = $2 \times 2 \times 2 = 8$ bags
2	20 24	
2	10 12	(b) In each bag = 5 candy bars + 6 chocolate bars
	5 6	

Qn 2

2	36 60 90	(a) Maximum number of goodie bags = $2 \times 3 = 6$ bags
3	18 30 45	$+ 6 = 10$ bars of chocolates
3	6 10 15	+ 15 packets of biscuit
		31 items

Qn 3

2	60 90 120	(a) Total people catered to = $2 \times 3 \times 5 = 30$ people
3	30 45 60	$= 2 \times 5 = 10$
5	10 15 20	(b) Total items each person can take = 2 sticks of satays + 3 cups of jelly + 4 cupcakes
	2 3 4	9 items

Qn 4

2	80 100	(a) Largest possible length of each tile = $2 \times 5 \times 2 = 20$ cm
5	40 50	$= 2 \times 5 = 10$
2	8 10	(b) Number of tiles needed = $4 \times 5 = 20$
	4 5	

Qn 5

2	120 150	(a) Largest possible length of each side of the tile = $2 \times 5 \times 3 = 30$ cm
5	60 75	$= 2 \times 5 = 10$
3	12 15	(b) Maximum number of tiles = $4 \times 5 = 20$
	4 5	

Qn 6

10	80 140 180	(a) Greatest possible length = $10 \times 2 = 20$ cm
2	8 14 18	$= 10 \times 2 = 20$
4	7 9	(b) Smaller pieces = $4 + 7 + 9 = 20$

Unit 1.6 – Lowest Common Multiple (LCM)

Qn 1
LCM of 3 and 5 is 15.
4th October → 15 days later → 19th October
They would meet again on 19th October.

Qn 2

$$\begin{array}{r} 3 \\ 2 \\ 2 \\ 5 \\ 2 \\ \hline 1 & 1 \end{array} \quad \begin{array}{l} \text{LCM of } 36 \text{ and } 30 \\ = 3 \times 2 \times 3 \times 5 \times 2 \\ = 180 \text{ seconds} = 3 \text{ minutes} \\ \text{8.10 p.m. } \xrightarrow{\text{3 minutes later}} \text{8.13 p.m.} \end{array}$$

Qn 3

$$\begin{array}{r} 2 \\ 5 \\ 3 \\ 1 \\ 2 \\ \hline 1 & 1 \end{array} \quad \begin{array}{l} \text{LCM of } 10, 15 \text{ and } 12 \\ = 2 \times 5 \times 3 \times 2 \\ = 60 \text{ seconds} = 1 \text{ minute} \\ \text{(a) 11 p.m. } \xrightarrow{\text{1 minute later}} \text{11.01 p.m.} \\ \text{(b) Since } 1 \text{ h} = 60 \text{ min } \geq 60 \text{ times} \end{array}$$

Qn 4

$$\begin{array}{r} 2 \\ 2 \\ 2 \\ 1 \\ \hline 1 & 1 \end{array} \quad \begin{array}{l} \text{Shortest length} \\ = \text{LCM of } 2, 4 \text{ and } 8 \\ = 2 \times 2 \times 2 = 8 \end{array}$$

Qn 5

$$\text{LCM of } 2, 3 \text{ and } 5 = 2 \times 3 \times 5 = 30$$

Qn 6

$$\begin{array}{l} \text{Groups of } 5 = 3 \text{ extra} \\ \text{Groups of } 8 = 7 \text{ extra} \\ \text{Groups of } 5: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 \\ (\text{Add 3}): 8, 13, 18, \textcircled{23}, 28, 33, 38, 43, 48, 53, 58, 63 \\ \text{Groups of } 8: 8, 16, 24, 32, 40, 48, 56, 64, 72, 80 \\ (\text{Add 7}): 15, \textcircled{23}, 31, 39, 47, 55, 63, 71, 79, 87 \\ \text{Clara has } 23 \text{ sweets.} \end{array}$$

Qn 7

$$\begin{array}{l} \text{Groups of 4: } 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44 \\ (\text{Add 2}): 6, 10, 14, 18, 22, \textcircled{20}, 30, 34, 38, 42, 46 \\ \text{Groups of 7: } 7, 14, 21, \textcircled{28}, 35, 42, 49, 56, 63, 70 \\ (\text{Subtract 2}): 5, 12, 19, \textcircled{20}, 33, 40, 47, 54, 61, 68 \\ \text{Lorraine has } 26 \text{ chocolates.} \end{array}$$

Qn 8

$$\begin{array}{l} \text{Groups of 6: } 6, 12, 18, 24, 30, 36, 42, 48, 54, 60 \\ (\text{Add 5}): 11, \textcircled{17}, 23, 29, 35, 41, 47, 53, 59, 65 \\ \text{Groups of 5: } 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 \\ (\text{Subtract 3}): 2, 7, 12, \textcircled{17}, 22, 27, 32, 37, 42, 47, 52, 57 \\ \text{Michael has } 17 \text{ balloons.} \end{array}$$

Qn 9

$$\text{LCM of } 5^{\text{th}} \text{ and } 8^{\text{th}} = 40$$

Qn 10

$$\begin{array}{r} 2 \\ 2 \\ 3 \\ 5 \\ 1 \\ 1 \\ \hline 1 & 1 \end{array} \quad \begin{array}{l} \text{LCM of } 4, 6 \text{ and } 5 \\ = 2 \times 2 \times 3 \times 5 = 60 \\ \text{Minimum number of books = 60} \end{array}$$

Unit 1.7 – More Than/Less Than (External Unchanged Type 1)

Qn 1

$$\begin{array}{r} \text{Janice} \xleftarrow{\text{3u}} \text{Rebecca} \end{array}$$

$$\begin{array}{r} \text{Janice} \xleftarrow{\text{3u}} \text{Rebecca} \\ \text{1U} \quad 14 \end{array}$$

$$\begin{array}{l} 2U = 32 + 14 \\ = 46 \\ 1U = 23 \\ \text{Number of sweets Janice had at first} = 23 \times 3 \\ = 69 \\ \text{Janice had } 69 \text{ sweets at first.} \end{array}$$

Qn 2

Dennis	30	120
Jean		

$$2u = 30 \quad 1u = 15$$

Number of marbles Dennis had at first = $15 + 150 = 165$

Dennis had 165 marbles at first.

Qn 3

Mr Tan		5u
Mr Krishnan	1u	\$340

$$4u = \$800 + \$340$$

$$= \$1140$$

$$1u = \$285$$

Mr Tan at first = $5u$
 $= 5 \times \$285$
 $= \$1425$

Qn 4

Joshua		3u
Melvin	15	

$$2u = 15 + 45$$

$$= 60$$

$$1u = 30$$

Number of stickers Joshua had at first = $3u = 3 \times 30 = 90$

Qn 5

Mrs Lim	1u	120	60
Mrs Tan			

Qn 6

$$1U = 120$$

Number of cookies Mrs Lim baked at first = $1U + 180 = 120 + 180 = 300$

John	\$30	\$45
Melvin		

$$\begin{array}{r} \text{John} \xleftarrow{\text{1u}} \text{Melvin} \end{array}$$

$$\begin{array}{r} \text{John} \xleftarrow{\text{1u}} \text{Melvin} \\ \text{3u} \end{array}$$

$$\begin{array}{l} 2u = \$30 \\ 1u = \$15 \\ \text{John at first} = \$15 + \$75 \\ = \$90 \end{array}$$

Unit 1.8 – More Than/Tess than (External Unchanged Type 2)

Qn 1

Before

Boys		
Girls		

After

Boys	1u	8	1u	8
Girl	1u	8		

$$\begin{array}{l} 2u = 1u + 8 + 8 \\ 1u = 8 + 8 \\ = 16 \\ \text{Number of boys at the party} = 16 \times 3 = 48 \end{array}$$

Qn 2

Before

Aaron		
Henry		

After

Aaron	1u	15	1u	15
Henry	1u	15		

$$\begin{array}{l} 3u = 1u + 15 + 15 \\ 2u = 15 + 15 \\ = 30 \\ 1u = 15 \\ \text{Number of stickers Aaron had} = 4u \\ = 4 \times 15 \\ = 60 \end{array}$$

Qn 3

Before

Calvin			
Mike			

After

Calvin	1u	12	1u	12	1u	12
Mike	1u	12				

$$\begin{array}{l} 6u = 2u + 12 + 12 + 12 \\ 4u = 12 + 12 + 12 \\ = 36 \\ 1u = 9 \\ \text{Number of sweets Calvin had} = 7u \\ = 7 \times 9 \\ = 63 \end{array}$$

Qn 4

Swimmers			
Non-swimmers	40		

$$\begin{array}{l} 2u = 1u + 40 + 40 + 40 \\ 1u = 60 \\ \text{Number of swimmers at the carnival} = 5u \\ = 5 \times 60 \\ = 300 \end{array}$$

Unit 1.9 – More Than/Less Than (External Unchanged Type 3)

Qn 1

Chickens		200
Ducks		

$$\begin{array}{l} 5u = 200 \\ 1u = 40 \\ \text{Chickens at first} = 6u \\ = 6 \times 40 \\ = 240 \end{array}$$

Qn 2

Mary		80
Linda		

$$\begin{array}{l} 5u = 80 \\ 1u = 16 \\ \text{Number of cookies Mary baked at first} = 6u \\ = 6 \times 16 \\ = 96 \end{array}$$

Qn 3

Mdm Wong		5u
Mdm Lee		

$$\begin{array}{l} 2u = 30 \\ 1u = 15 \\ \text{Number of egg tarts Mdm Wong had at first} = 3u \\ = 3 \times 15 \\ = 45 \end{array}$$

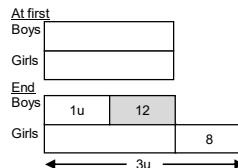
Qn 4

Men		45
Women		

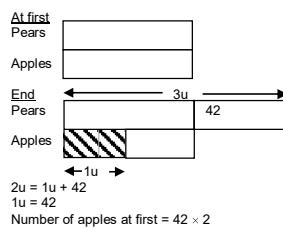
$$\begin{array}{l} 5u = 45 \\ 1u = 9 \\ \text{Number of men at the party at first} = 6u \\ = 6 \times 9 \\ = 54 \end{array}$$

Unit 1.10 – Equal Stage Type 1 (Beginning)

Qn 1



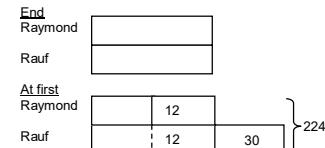
Qn 5



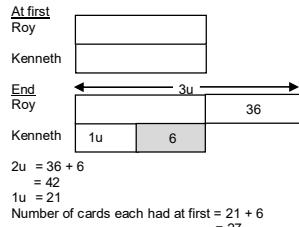
Qn 2 (Cont.)

$$\begin{aligned} 4u &= 88 - 8 \\ &= 80 \\ 1u &= 20 \\ \text{Number of stickers each had in the end} &= 20 - 8 \\ &= 12 \end{aligned}$$

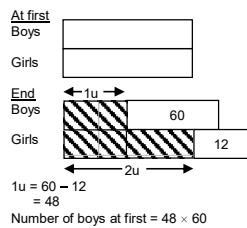
Qn 6



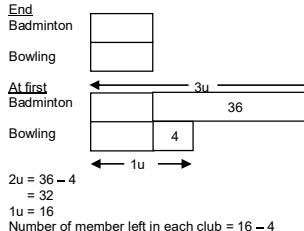
Qn 2



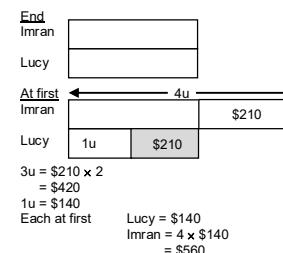
Qn 6



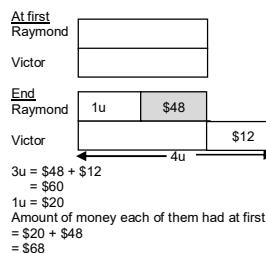
Qn 3

**Unit 1.12 – Equal Stage Type 3 (Internal Transfer)**

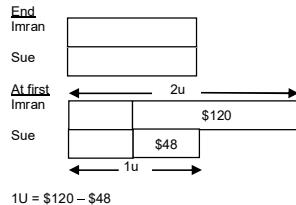
Qn 1



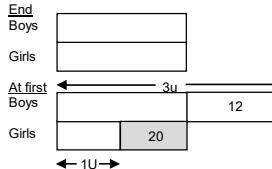
Qn 3

**Unit 1.11 – Equal Stage Type 2 (End)**

Qn1

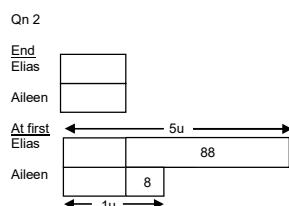
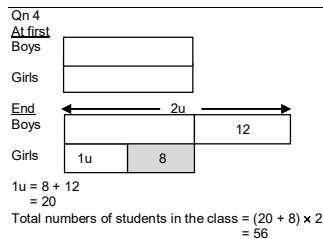
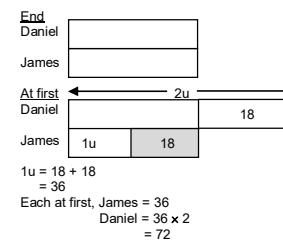


Qn 4



$$\begin{aligned} 2u &= 20 + 12 = 32 \\ 1u &= 16 \\ \text{Number of boys at first} &= 16 \times 3 = 48 \end{aligned}$$

Qn 2



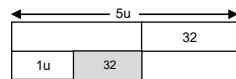
$$\begin{aligned} 3u &= 125 - 35 = 90 \\ 1u &= 30 \\ \text{Number of oranges at first} &= 30 + 35 = 65 \end{aligned}$$

Visit the forum page at www.onSponge.com for more challenging problem sums.

Qn 4

End

David



$$4u = 32 + 32 \\ = 64$$

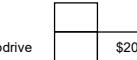
$$1u = 16$$

Each at first, Serene = \$16
David = $5 \times \$16$
= \$80

Unit 1.13 – Multiple Quantities (More than/Less than)

Qn 1

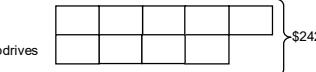
1 CD



1 thumbdrive



5 CDs



$$9u + \$80 = \$242$$

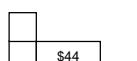
$$9u = \$162$$

$$1u = \$18$$

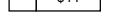
Cost of 1 CD is \$18.

Qn 2

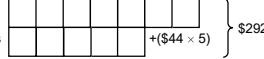
1 bulb



1 lamp



7 bulbs



$$12u + \$220 = \$292$$

$$12u = \$72$$

$$1u = \$6$$

A lamp costs = $\$44 + \6
= \$50

Qn 3

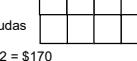
1 T-shirt



1 Bermuda



3 T-shirts



$$7u + \$72 = \$170$$

$$7u = \$98$$

$$1u = \$14$$

Cost fo 1 Bermudas = $\$14 + \18
= \$32

Qn 4

1 plate



1 cup



$$6 \text{ plates} = 12u$$

$$8 \text{ cups} = 8u$$

$$20u = \$120$$

$$1u = \$6$$

12 plates costs = $\$6 \times 2 \times 12$
= \$144

Qn 5

1 crate



1 carton



$$5 \text{ cartons} = 5u$$

$$7 \text{ crates} = 21u$$

$$\left. \begin{array}{l} 5 \text{ cartons} = 5u \\ 7 \text{ crates} = 21u \end{array} \right\} 130 \text{ kg}$$

$$26u = 130 \text{ kg}$$

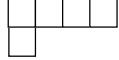
$$1u = 130 \div 26$$

$$= 5 \text{ kg}$$

Mass of 1 carton = 5 kg

Qn 6

1 pillow



1 bolster



$$3 \text{ pillows} = 12u$$

$$8 \text{ bolsters} = 8u$$

$$\left. \begin{array}{l} 3 \text{ pillows} = 12u \\ 8 \text{ bolsters} = 8u \end{array} \right\} \$360$$

$$20u = \$360$$

$$1u = \$360 \div 20$$

$$= 18$$

Cost of 1 pillow = $\$18 \times 4$
= \$72

Qn 7

1 bat



1 racket



4 bats



$$\left. \begin{array}{l} 1 \text{ bat} \\ 1 \text{ racket} \\ 4 \text{ bats} \\ 7 \text{ rackets} \end{array} \right\} (\$22 \times 7) \\ \$286$$

$$11u + \$154 = \$286$$

$$11u = \$132$$

$$1u = \$12$$

1 racket costs $\$12 + \$22 = \$34$

Qn 8

1 CD



1 shirt



1 Bermuda



$$\left. \begin{array}{l} 1 \text{ CD} \\ 1 \text{ shirt} \\ 1 \text{ Bermuda} \end{array} \right\} \$76$$

$$3u + \$28 = \$76$$

$$3u = \$48$$

$$1u = \$16$$

1 T-shirt costs = $\$16 + \8
= \$24

Qn 9

2 cups



1 plate



1 bowl



$$\left. \begin{array}{l} 2 \text{ cups} \\ 1 \text{ plate} \\ 1 \text{ bowl} \end{array} \right\} \$18$$

$$4u + \$8 = \$18$$

$$4u = \$10$$

$$1u = \$2.50$$

$$12 \text{ cups} = 12 \times \$2.50$$

$$= \$30$$

Qn 6

$$\text{Number} \times \text{Value} = \text{Total}$$

$$\text{Correct Qn } 5u \times 3 \text{ points} = 15u$$

$$\text{Wrong Qn } 1u \times -2 \text{ points} = -2u$$

$$\text{Difference } 13u$$

$$13u = 104$$

$$1u = 104 \div 13$$

$$= 8$$

Number of questions answered correctly

$$= 5u$$

$$= 5 \times 8$$

$$= 40$$

Unit 1.15 – Repeated Identity (Type 1)

Qn 1

Imran



Daniel



Jessica



$$\left. \begin{array}{l} \text{Imran} \\ \text{Daniel} \\ \text{Jessica} \end{array} \right\} 143$$

$$11u = 143$$

$$1u = 143 \div 11$$

$$= 13$$

Number of stickers Imran has = 2u
= 2×13
= 26

Qn 2

Sam



Calvin



Krishnan



$$\left. \begin{array}{l} \text{Sam} \\ \text{Calvin} \\ \text{Krishnan} \end{array} \right\} \$2100$$

$$6u = \$2100$$

$$1u = \$2100 \div 6$$

$$= \$350$$

Amount of money that Sam had = 3u
= $3 \times \$350$
= \$1050

Qn 3

Blue



Red



Green



$$\left. \begin{array}{l} \text{Blue} \\ \text{Red} \\ \text{Green} \end{array} \right\} 135$$

$$9u = 135$$

$$1u = 135 \div 9$$

$$= 15$$

Number of red balls in the bag = 15

Qn 4

Michelle



Chris



Rebecca



$$\left. \begin{array}{l} \text{Michelle} \\ \text{Chris} \\ \text{Rebecca} \end{array} \right\} 8$$

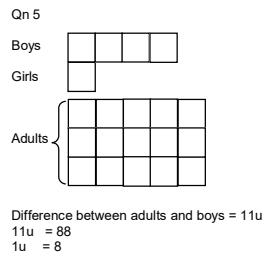
$$2u = 8$$

$$1u = 8 \div 2$$

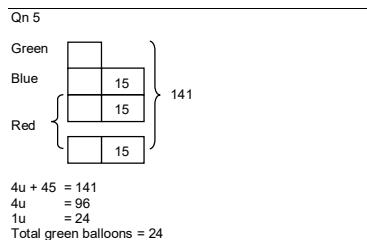
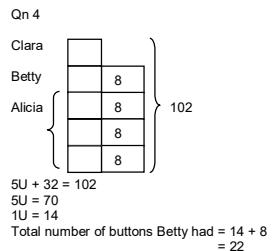
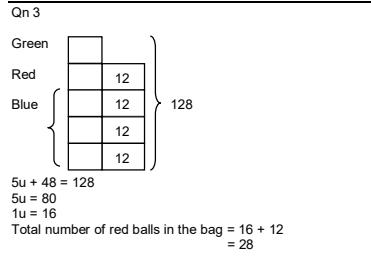
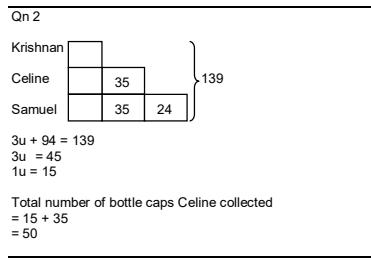
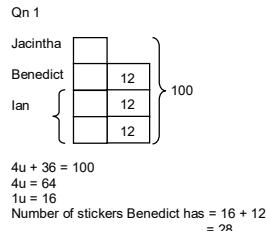
$$= 4$$

Total dolls collected = 7u
= 7×4

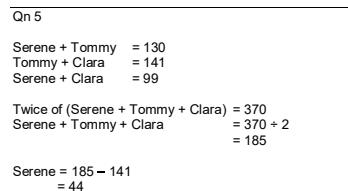
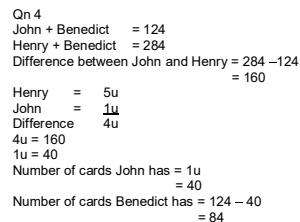
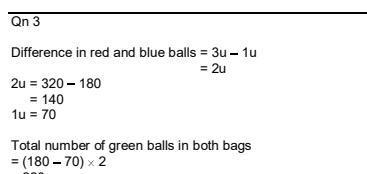
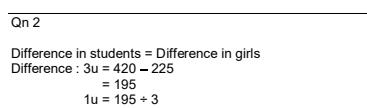
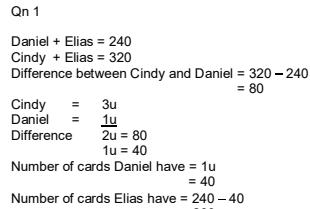
$$= 28$$



Unit 1.16 – Repeated Identity (Type 2)



Unit 1.17 – Repeated Identity (Type 3)



Chapter 2 Fraction

Unit 2.1 – Addition & Subtraction of Fractions (Type 1)

Qn 1

(a) $1 - \frac{5}{12} - \frac{1}{12} = \frac{6}{12}$
 $= \frac{1}{2}$

He gave $\frac{1}{2}$ of his sweets in all.

(b) He had $\frac{1}{2}$ of his sweets left.

Qn 2

$1 - \frac{3}{11} - \frac{4}{11} = \frac{4}{11}$

$\frac{4}{11}$ pole = 20 cm

$\frac{1}{11}$ pole = 5 cm

(a) $\frac{4}{11}$ of the pole was painted green.

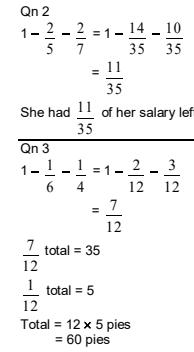
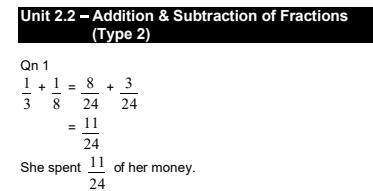
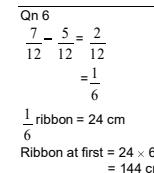
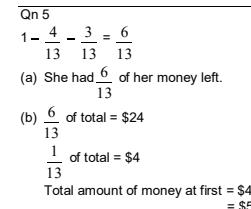
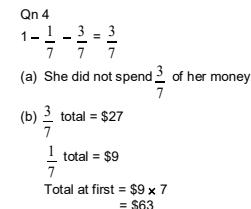
(b) Length of the pole = $11 \times 5 = 55$ cm

Qn 3

(a) $1 - \frac{2}{9} - \frac{4}{9} = \frac{3}{9}$
 $= \frac{1}{3}$

$\frac{1}{3}$ of the class likes soccer.

(b) Total students in the class = $12 \times 3 = 36$



Qn 4

$$1 - \frac{1}{4} - \frac{3}{8} = 1 - \frac{2}{8} - \frac{3}{8}$$

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

$\frac{3}{8}$ strings = 90 cm

$\frac{1}{8}$ string = 30 cm

$$\text{Original length} = 30 \times 8$$

$$= 240 \text{ cm}$$

Qn 5

$$1 - \frac{1}{4} - \frac{2}{5} = 1 - \frac{5}{20} - \frac{8}{20}$$

$$= \frac{7}{20}$$

$\frac{7}{20}$ track = 1400 m

$\frac{1}{20}$ track = 200 m

$$\text{Entire track} = 200 \times 20$$

$$= 4000 \text{ m}$$

Qn 6

$$1 - \frac{1}{3} - \frac{3}{7} = 1 - \frac{7}{21} - \frac{9}{21}$$

$$= \frac{5}{21}$$

$\frac{5}{21}$ of total = 145

$\frac{1}{21}$ of total = 145 ÷ 5

= 29

$$\text{Total apples at first} = 29 \times 21$$

$$= 609$$

Unit 2.3 – Addition & Subtraction of Fractions (Type 3)

Qn 1

$$\text{Difference in mass} = \frac{1}{2} \text{ kg} - \frac{1}{3} \text{ kg}$$

$$= \frac{3}{6} \text{ kg} - \frac{2}{6} \text{ kg}$$

$$= \frac{1}{6} \text{ kg}$$

Qn 2

$$\text{Weight of pencil box} = \frac{8}{9} \text{ kg} - \frac{2}{3} \text{ kg}$$

$$= \frac{8}{9} \text{ kg} - \frac{6}{9} \text{ kg}$$

$$= \frac{2}{9} \text{ kg}$$

$$\text{Difference in mass} = \frac{2}{3} \text{ kg} - \frac{2}{9} \text{ kg}$$

$$= \frac{6}{9} \text{ kg} - \frac{2}{9} \text{ kg}$$

$$= \frac{4}{9} \text{ kg}$$

Qn 3

$$\text{Difference} = \frac{1}{3} - \frac{1}{5}$$

$$= \frac{5}{15} - \frac{3}{15}$$

$$= \frac{2}{15} \text{ cake}$$

$$\frac{2}{15} \text{ of cake} = 200 \text{ g}$$

$$\frac{1}{15} \text{ of cake} = 100 \text{ g}$$

$$\text{Total cake} = 15 \times 100 \text{ g}$$

$$= 1500 \text{ g}$$

Qn 4

$$\text{Mass of cup} = \frac{2}{3} \text{ kg} - \frac{2}{5} \text{ kg}$$

$$= \frac{10}{15} \text{ kg} - \frac{6}{15} \text{ kg}$$

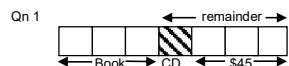
$$= \frac{4}{15} \text{ kg}$$

$$\text{Difference in mass} = \frac{2}{5} \text{ kg} - \frac{4}{15} \text{ kg}$$

$$= \frac{6}{15} \text{ kg} - \frac{4}{15} \text{ kg}$$

$$= \frac{2}{15} \text{ kg}$$

Unit 2.4 – Part-whole Relationship (Type 1)



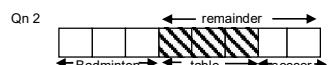
$$3u = \$45$$

$$1u = \$15$$

$$\text{Total amount of money at first} = 7u$$

$$= 7 \times \$15$$

$$= \$105$$

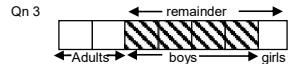


$$\text{Difference between badminton and soccer} = 6$$

$$\text{Total in class} = 8u$$

$$= 8 \times 6$$

$$= 48$$



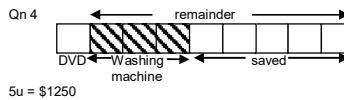
$$\text{Difference between adults and girls} = 1u$$

$$= 80$$

$$\text{Total at the party} = 7u$$

$$= 7 \times 80$$

$$= 560$$



$$5u = \$1250$$

$$1u = \$250$$

$$\text{Total spent on DVD} = \$250$$



$$\text{Difference between basketball and table tennis} = 3u$$

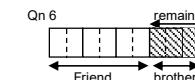
$$3u = 9$$

$$1u = 3$$

$$\text{Total in the class} = 16u$$

$$= 16 \times 3$$

$$= 48$$



$$\text{Difference between friend and brother} = 3u$$

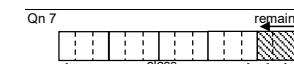
$$3u = 15$$

$$1u = 5$$

$$\text{Total cookies she baked at first} = 10u$$

$$= 5 \times 10$$

$$= 50$$

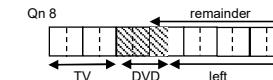


$$1u = 30$$

$$\text{Total} = 15u$$

$$= 15 \times 30$$

$$= 450$$



$$7u = \$630$$

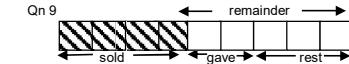
$$1u = \$630 + 7$$

$$= \$90$$

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

$$= 14 \times \$90$$

$$= \$1260$$



$$\text{Total} = 9u$$

$$9u = 360$$

$$1u = 360 + 9$$

$$= 40$$

$$\text{Rest} = 3u$$

$$3u = 3 \times 40$$

$$= 120$$

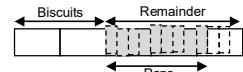
$$\text{Number of boxes} = 120 + 30$$

$$= 4$$

Unit 2.6 Part-whole Relationship (Type 3)

Note: u represents units and p represent parts.

Qn 1

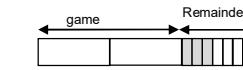


$$\begin{aligned} 3u \text{ of Total} &= 12p \\ 1u \text{ of Total} &= 4p \\ 5u \text{ of Total} &= 20p \\ (\text{a}) \text{ He spent } &\frac{9}{20} \text{ of his money on pens.} \\ \text{Money left} &= 12p - 9p \\ &= 3p \end{aligned}$$

$$\begin{aligned} 3p &= 6 \\ 1p &= 2 \\ 4p &= 8 \end{aligned}$$

$$\begin{aligned} 1u &= 8 \\ 5u &= 40 \\ (\text{b}) \text{ Max had } &\$40 \text{ at first.} \end{aligned}$$

Qn 2



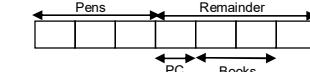
$$\begin{aligned} 1u \text{ of Total} &= 7p \\ 3u \text{ of Total} &= 21p \\ (\text{a}) \text{ She spent } &\frac{4}{21} \text{ of her money on the CD.} \end{aligned}$$

$$\begin{aligned} 4p &= 24 \\ 1p &= 6 \\ 7p &= 42 \end{aligned}$$

$$\begin{aligned} 1u &= 42 \\ 3u &= 126 \end{aligned}$$

(b) Daphne had \$126 at first.

Qn 3



$$\begin{aligned} (\text{a}) \text{ Fraction of money left} &= \frac{1}{7} \\ (\text{b}) \quad 1u &= \$12 \\ 7u &= 7 \times \$12 \\ &= \$84 \\ \text{Serene had } &\$84 \text{ at first.} \end{aligned}$$



$$\begin{aligned} 1u \text{ of Total} &= 7p \\ 2u \text{ of Total} &= 14p \end{aligned}$$

$$\begin{aligned} 4p &= 8 \text{ loaves of bread} \\ 1p &= 2 \text{ loaves of bread} \\ 7p &= 14 \text{ loaves of bread} \end{aligned}$$

Qn 4 (Cont.)

$$\begin{aligned} 1 \text{ loaf of bread} &= 3 \text{ pies} \\ 14 \text{ loaves of bread} &= 42 \text{ pies} \\ \text{Esther bought } &42 \text{ pies.} \end{aligned}$$

Qn 5



$$\begin{aligned} 5u \text{ of Total} &= 15p \\ 1u \text{ of Total} &= 3p \\ 7u \text{ of Total} &= 35p \\ 10p &= \$2200 \\ 1p &= \$220 \\ 35p &= \$7700 \\ \text{Mr Imran's salary was } &\$7700. \end{aligned}$$

Qn 6



$$\begin{aligned} 6u \text{ of Girls and } 3u \text{ of boys did not know how to swim.} \\ \text{Swimmers} &= 20u - 9u \\ &= 11u \\ 11u &= 154 \\ 1u &= 14 \\ 20u &= 280 \\ \text{There were } &280 \text{ students altogether at the event.} \end{aligned}$$

Unit 2.7 Comparison of Different Quantities

$$\begin{aligned} \text{Qn 1} \\ 1 \text{ box} &= 3u \\ 1 \text{ crate} &= 5u \end{aligned}$$

$$\begin{aligned} 2 \text{ boxes} &= 6u \\ 4 \text{ crates} &= 20u \} 130 \text{ kg} \\ \text{Total mass} &= 26u \\ 26u &= 130 \text{ kg} \\ 1u &= 150 \text{ kg} + 26 \\ &= 5 \text{ kg} \end{aligned}$$

$$\begin{aligned} \text{Mass of 1 box of onions} &= 3u \\ &= 3 \times 5 \text{ kg} \\ &= 15 \text{ kg} \end{aligned}$$

$$\begin{aligned} \text{Qn 2} \\ 1 \text{ wire} &= 1u \\ 1 \text{ ribbon} &= 3u \\ 6 \text{ wires} &= 6u \\ 3 \text{ ribbons} &= 9u \end{aligned}$$

$$\begin{aligned} \text{Total} &= 15u \\ 15u &= 300 \text{ cm} \\ 1u &= 300 \text{ cm} \div 15 \\ &= 20 \text{ cm} \\ \text{Length of a wire} &= 20 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Qn 3} \\ 1 \text{ girl} &= 1u \\ 1 \text{ boy} &= 4u \\ 8 \text{ girls} &= 8u \} 256 \\ 6 \text{ boys} &= 24u \end{aligned}$$

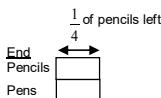
$$\begin{aligned} \text{Total} &= 32u \\ 32u &= 256 \\ 1u &= 256 \div 32 \\ &= 8 \\ \text{No. of sweets received by each girl} &= 8 \end{aligned}$$

Qn 4

$$\begin{aligned} 1 \text{ radio} &= 3u \\ 1 \text{ computer} &= 5u \\ 7 \text{ radios} &= 21u \\ 4 \text{ computers} &= 20u \} \$3280 \\ \text{Total} &= 41u \\ 41u &= \$3280 \\ 1u &= \$3280 \div 41 \\ &= \$80 \\ \text{Cost of computer} &= 5u \\ &= 5 \times \$80 \\ &= \$400 \end{aligned}$$

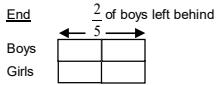
Unit 2.8 – Equal Stage (Type 1)

Qn 1



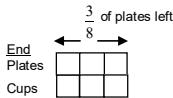
$$\begin{aligned} \text{At first} \\ \text{Pencils} &= 4u \\ \text{Pens} &= 15u \} 100 \\ 5u + 15 &= 100 \\ 5u &= 85 \\ 1u &= 17 \\ \text{Total pens at first} &= 17 + 15 \\ &= 32 \end{aligned}$$

Qn 2



$$\begin{aligned} \text{At first} \\ \text{Boys} &= 5u \\ \text{Girls} &= 70u \} 280 \\ 7u + 70 &= 280 \\ 7u &= 210 \\ 1u &= 30 \\ \text{Total boys at first} &= 5u \\ &= 5 \times 30 \\ &= 150 \end{aligned}$$

Qn 3



$$\begin{aligned} \text{At first} \\ \text{Plates} &= 5u \\ \text{Cups} &= 12u \} 100 \\ 11u + 12 &= 100 \\ 11u &= 88 \\ 1u &= 8 \\ \text{Total cups at shop at first} &= 3u + 12 \\ &= 3 \times 8 + 12 \\ &= 36 \end{aligned}$$

Qn 4

$$\begin{aligned} \text{End} \\ \text{Green} &= 5u \\ \text{Blue} &= 3u \} 140 \\ \text{At first} \\ \text{Green} &= 28u \\ \text{Blue} &= 14u \} 140 \end{aligned}$$

$$\begin{aligned} 8u + 28 &= 140 \\ 8u &= 140 - 28 \\ &= 112 \\ 1u &= 14 \\ \text{Total blue balls at first} &= 5u \\ &= 5 \times 14 \\ &= 70 \end{aligned}$$

Qn 5

$$\begin{aligned} \text{At first} \\ \text{Boys} &= 5u \\ \text{Girls} &= 15u \} 100 \\ \text{End} \\ \text{Boys} &= 30u \\ \text{Girls} &= 42u \} 100 \\ 3u &= 42 - 12 \\ &= 30 \\ 1u &= 10 \\ \text{Total number of students at first} &= 10u \\ &= 10 \times 10 \\ &= 100 \end{aligned}$$

Qn 6

$$\begin{aligned} \text{At first} \\ \text{Banana} &= 5u \\ \text{Chocolate} &= 15u \} 100 \\ \text{End} \\ \text{Banana} &= 30u \\ \text{Chocolate} &= 45u \} 100 \\ 2u &= 45 + 15 \\ &= 60 \\ 1u &= 30 \\ \text{Total number of muffins at first} &= 14u \\ &= 14 \times 30 \\ &= 420 \end{aligned}$$

Unit 2.9 – Equal Stage (Type 2)

Qn 1

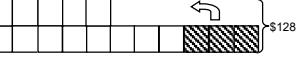
$$\begin{aligned} \text{Daniel} &= 5u \\ \text{Gerald} &= 28u \} 280 \\ 10u &= 280 \\ 1u &= 28 \\ \text{Number of sweets Gerald must give Daniel} &= 2u \\ &= 2 \times 28 \\ &= 56 \end{aligned}$$

Qn 2

Tan 

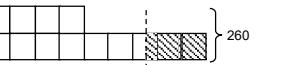
$8u = 112$
 $1u = 14$
Number of cookies Mrs Krishnan must give Mrs Tan
 $= 3u$
 $= 3 \times 14$
 $= 42$

Qn 3

Joseph 

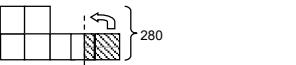
$16u = \$128$
 $1u = \$8$
Aaron must give to Joseph = $3u$
 $= 3 \times \$8$
 $= \$24$

Qn 4

Clara 

$13u = 260$
 $1u = 20$
Number of pebbles Judy must give to Clara
 $= 2\frac{1}{2}u$
 $= 2\frac{1}{2} \times 20$
 $= \frac{5}{2} \times 20$
 $= 50$

Qn 5

David 

$7u = 280$
 $1u = 40$
Number of books Raymond must give David
 $= 1\frac{1}{2}u$
 $= 1\frac{1}{2} \times 40$
 $= \frac{3}{2} \times 40$
 $= 60$

Unit 2.10 – Equal Stage (Type 3)

Qn 1

$\frac{3}{4}$ of Chelsia = $\frac{2}{3}$ of Benson

$\frac{6}{8}$ of Chelsia = $\frac{6}{9}$ of Benson

Chelsia = 8u
Benson = 9u
Difference = 1u

Qn 1 (Cont.)

$1u = \$18$
Total sum of Chelsia + Benson = $17u$
 $= 17 \times \$18$
 $= \$306$

Qn 2

$\frac{4}{7}$ of girls = $\frac{2}{3}$ of boys

$\frac{4}{7}$ of girls = $\frac{4}{6}$ of boys

Girls = 7u
Boys = 6u
Total = 13u
 $13u = 78$
 $1u = 6$
Total girls = $7u$
 $= 7 \times 6$
 $= 42$

Qn 3

$\frac{3}{5}$ of pencils = $\frac{2}{5}$ of pens

$\frac{6}{10}$ of pencils = $\frac{6}{15}$ of pens

Pencils = 10u
Pens = 15u
Total = $10u + 15u$
 $= 25u$
 $25u = 75$
 $1u = 3$
Pencils = $10u$
 $= 10 \times 3$
 $= 30$

Qn 4

$\frac{3}{4}$ of men = $\frac{1}{7}$ of women

$\frac{3}{4}$ of men = $\frac{3}{21}$ of women

Men = 4u
Women = 21u
Total = $4u + 21u$
 $= 25u$
 $25u = 225$
 $1u = 9$
Total men = $4u$
 $= 4 \times 9$
 $= 36$

Qn 5

$\frac{3}{4}$ boys = $\frac{2}{3}$ girls

$\frac{6}{8}$ boys = $\frac{6}{9}$ girls

Boys = 8u
Girls = 9u
Total = 17u
 $17u = 510$
 $1u = 30$
Difference between boys and girls = $1u = 30$

Qn 6

$\frac{2}{5}$ of blue = $\frac{3}{5}$ of red

$\frac{6}{15}$ of blue = $\frac{6}{10}$ of red

Blue = 15u
Red = 10u
Total = $15u + 10u$
 $= 25u$
 $25u = 125$
 $1u = 5$
Difference between blue and red = $5u$
 $= 5 \times 5$
 $= 25$

Qn 7

$\frac{3}{4}$ of English = $\frac{2}{7}$ of Chinese

$\frac{6}{8}$ of English = $\frac{6}{21}$ of Chinese

English = 8u
Chinese = 21u
Total = $8u + 21u$
 $= 29u$
 $29u = 435$
 $1u = 15$
English total = $8u$
 $= 8 \times 15$
 $= 120$

Qn 8

$\frac{3}{8}$ of oranges = $\frac{2}{5}$ of apples

$\frac{6}{16}$ of oranges = $\frac{6}{15}$ of apples

Oranges = 16u
Apples = 15u
Total = $16u + 15u$
 $= 31u$
 $31u = 620$
 $1u = 20$
Apples = $15u$
 $= 15 \times 20$
 $= 300$

Qn 9

$\frac{1}{4}$ Esther = $\frac{3}{7}$ Kevin

$\frac{3}{12}$ Esther = $\frac{3}{7}$ Kevin

Esther = 12u
Kevin = 7u
Difference = 5u
 $5u = \$350$
 $1u = \$70$
Kevin = $7u$
 $= 7 \times \$70$
 $= \$490$

Qn 10

$\frac{2}{5}$ boys = $\frac{3}{8}$ girls

$\frac{6}{15}$ boys = $\frac{6}{16}$ girls

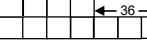
Qn 10 (Cont.)

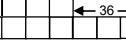
Boys = 15u
Girls = 16u
Difference = 1u
 $1u = 30$
Boys at first = $15u$
 $= 15 \times 30$
 $= 450$

Unit 2.11 – External Unchanged (Type 1)

Qn 1

At first

Square 

Oval 

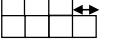
$3u = 36$
 $1u = 12$
Number of square-shaped cookies = $4u$
 $= 4 \times 12$
 $= 48$
Number of oval-shaped cookies = $7u$
 $= 7 \times 12$
 $= 84$

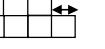
End

Oval = 3u
Square = 1u
Since the number of oval-shaped cookies remained the same;
 $3u = 84$
 $1u = 28$
Number of square-shaped cookies in the end = $1u$
 $= 28$
Number of square-shaped cookies removed = $48 - 28$
 $= 20$

Qn 2

At first

Chickens 

Ducks 

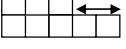
$1u = 120$
Number of chickens = $3u$
 $= 3 \times 120$
 $= 360$
Number of ducks = $4u$
 $= 4 \times 120$
 $= 480$

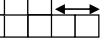
End

Ducks = 4u
Chickens = 1u
Since the number of ducks remained the same;
 $4u = 480$
 $1u = 120$
Number of chickens in the end = $1u$
 $= 120$
Number of chickens sold = $360 - 120$
 $= 240$

Qn 3

At first

Plates 

Cups 

$2u = 80$
 $1u = 40$

Qn 3 (Cont.)

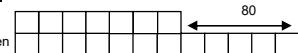
$$\begin{aligned}\text{Number of plates} &= 3u \\ &= 3 \times 40 \\ &= 120 \\ \text{Number of cups} &= 5u \\ &= 5 \times 40 \\ &= 200\end{aligned}$$

End

$$\begin{aligned}\text{Plates} &= 2u \\ \text{Cups} &= 1u \\ \text{Since the number of plates remained the same;} \\ 2u &= 120 \\ 1u &= 60 \\ \text{Number of cups in then end} &= 1u \\ &= 60 \\ \text{Number of cups sold} &= 200 - 60 \\ &= 140\end{aligned}$$

Qn 4

At first



$$5u = 80$$

$$1u = 16$$

$$\text{Men} = 16 \times 7$$

$$= 112$$

$$\text{Women} = 12 \times 16$$

$$= 192$$

End

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

$$\text{Women} = 3u$$

Since women remain the same,
 $3u = 192$
 $1u = 64$
 Number of men who left halfway $= 112 - 64$
 $= 48$

Unit 2.12 – External Unchanged (Type 2)

Qn 1

At first

$$\text{Orange} = 3u$$

$$\text{Water} = 7u$$

End

$$\text{Orange} = 1u \times 3$$

$$= 3u$$

$$\text{Water} = 4u \times 3$$

$$= 12u$$

$$\text{Increase in water used} = 12u - 7u$$

$$= 5u$$

$$5u = 1100 \text{ mL}$$

$$1u = 220 \text{ mL}$$

$$\text{Amount of syrup used} = 3u$$

$$= 3 \times 220 \text{ mL}$$

$$= 660 \text{ mL}$$

Qn 2

At first

$$\text{Children} = 3u \times 4$$

$$= 12u$$

$$\text{Adults} = 4u \times 4$$

$$= 16u$$

Qn 2 (Cont.)

End

$$\begin{aligned}\text{Children} &= 4u \times 3 \\ &= 12u \\ \text{Adults} &= 5u \times 3 \\ &= 15u\end{aligned}$$

$$\text{Decrease in adults} = 1u$$

$$1u = 2$$

$$\begin{aligned}\text{Number of children in the bus} &= 12u \\ &= 12 \times 2 \\ &= 24\end{aligned}$$

Qn 3

At first

$$\text{Boys} = 4u \times 3$$

$$= 12u$$

$$\text{Girls} = 3u \times 3$$

$$= 9u$$

End

$$\text{Boys} = 3u \times 4$$

$$= 12u$$

$$\text{Girls} = 5u \times 4$$

$$= 20u$$

$$\text{Increase in girls} = 20u - 9u$$

$$= 11u$$

$$11u = 22$$

$$1u = 2$$

$$\text{Number of students in the end} = 32u$$

$$= 32 \times 2$$

$$= 64$$

Qn 4

At first

$$\text{Oranges} = 1u \times 3$$

$$= 3u$$

$$\text{Pears} = 2u \times 3$$

$$= 6u$$

End (conditional)

$$\text{Oranges} = 3u$$

$$\text{Pears} = 2u$$

$$\text{Decrease in pears} = 6u - 2u$$

$$= 4u$$

$$4u = 20$$

$$1u = 5$$

$$\text{Total} = 9u$$

$$= 9 \times 5$$

$$= 45$$

Qn 5

At first

$$\text{Red} = 1u \times 5$$

$$= 5u$$

$$\text{Blue} = 3u \times 5$$

$$= 15u$$

End

$$\text{Red} = 2u \times 3$$

$$= 6u$$

$$\text{Blue} = 5u \times 3$$

$$= 15u$$

$$\text{Increase in red} = 6u - 5u$$

$$= 1u$$

$$2u = 12$$

$$\text{Total} = 20u$$

$$= 20 \times 12$$

$$= 240$$

Unit 2.13 – Repeated Identity

Qn 1

$$\begin{aligned}\text{Banana} &= 1u \times 2 \\ &= 2u \\ \text{Chocolate} &= 5u \times 2 \\ &= 10u \\ \text{Banana} &= 2u \\ &= 3u \\ \text{Blueberry} &= 3u\end{aligned}\left.\begin{array}{l} \\ \\ \end{array}\right\} 15u$$

$$15u = 120$$

$$1u = 8$$

$$\begin{aligned}\text{Total number of banana} &= 2u \\ &= 2 \times 8 \\ &= 16\end{aligned}$$

Qn 2

$$\begin{aligned}\text{Serene} &= 4u \times 4 \\ &= 16u \\ \text{Melvin} &= 7u \times 4 \\ &= 28u \\ \text{Melvin} &= 4u \times 7 \\ &= 35u \\ \text{Esther} &= 5u \times 7\end{aligned}\left.\begin{array}{l} \\ \\ \end{array}\right\} 19u$$

$$\text{Difference between Serene and Esther} = 35u - 16u$$

$$= 19u$$

$$19u = 38$$

$$1u = 2$$

$$\begin{aligned}\text{Total number of chocolate} &= 16u + 28u + 35u \\ &= 79u \\ &= 79 \times 2 \\ &= 158\end{aligned}$$

Qn 3

$$\begin{aligned}\text{Boys} &= 1u \times 5 \\ &= 5u \\ \text{Girls} &= 3u \times 5 \\ &= 15u \\ \text{Adults} &= 2u \times 4 \\ &= 8u \\ \text{Children} &= 5u \times 4\end{aligned}\left.\begin{array}{l} \\ \\ \\ \end{array}\right\} \text{Boys} = 5u \\ \text{Girls} = 15u \\ \text{Adults} = 8u \\ \text{Children} = 20u$$

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

$$3u = 24$$

$$1u = 8$$

$$\begin{aligned}\text{Total number of people} &= 28u \\ &= 28 \times 8 \\ &= 224\end{aligned}$$

Qn 4

$$\begin{aligned}\text{Red} &= 3u \times 3 \\ &= 9u \\ \text{Blue} &= 5u \times 3 \\ &= 15u \\ \text{Green} &= 2u \times 5 \\ &= 10u \\ \text{Blue} &= 3u \times 5\end{aligned}\left.\begin{array}{l} \\ \\ \\ \end{array}\right\} \text{Red} = 9u \\ \text{Blue} = 15u \\ \text{Green} = 10u \\ \text{Blue} = 15u$$

$$\begin{aligned}\text{Difference between green and red balls} &= 10u - 9u \\ &= 1u\end{aligned}$$

$$1u = 8$$

$$\begin{aligned}\text{Total number of balls} &= 9u + 15u + 10u \\ &= 34u \\ &= 34 \times 8 \\ &= 272\end{aligned}$$

Qn 5

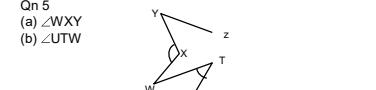
$$\begin{aligned}\text{(a) } \angle DCE &= 52^\circ & \angle ECB &= 38^\circ \\ & \angle DCE + \angle ECB &= 90^\circ \\ \text{(b) } \angle DCE &= 34^\circ & \angle ECB &= 56^\circ \\ & \angle DCE + \angle ECB &= 90^\circ \\ \text{(c) } \angle DCA &= 30^\circ & \angle ACB &= 60^\circ \\ & \angle DCA + \angle ACB &= 90^\circ\end{aligned}$$

Chapter 3 Angles

Unit 3.1 – Naming Angles (Basic)

$$\begin{array}{ll} \text{Qn 1} & \text{Qn 2} \\ \angle ABC & \angle BCD \\ \angle BCD & \angle TUW \\ \angle TUW & \angle WXY \end{array}$$

$$\begin{array}{ll} \text{Qn 3} & \text{Qn 4} \\ \angle ACB & \angle CDE \\ \angle CDE & \angle AEC \\ \angle AEC & \angle BDC \end{array}$$



Unit 3.2 – Measuring Angles (Basic)

$$\begin{array}{ll} \text{Qn 1} & \text{Qn 2} \\ \text{(a) } \angle a &= 27^\circ & \text{(b) } \angle a &= 130^\circ \\ \text{(c) } \angle a &= 87^\circ & \text{(d) } \angle a &= 57^\circ \\ \text{(e) } \angle ABC &= 140^\circ & \text{(f) } \angle XYZ &= 102^\circ \end{array}$$

$$\text{Qn 3} \quad \angle EFH = 71^\circ \quad \angle GFH = 109^\circ \quad \angle EFH + \angle GFH = 180^\circ$$

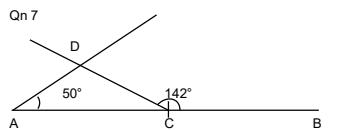
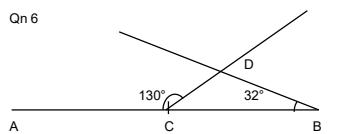
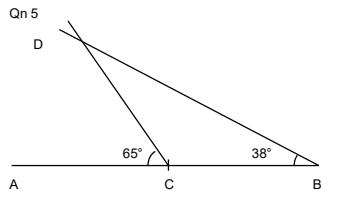
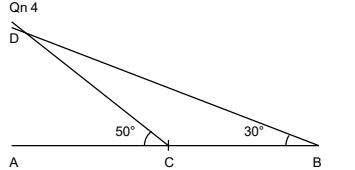
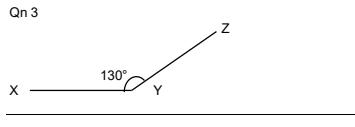
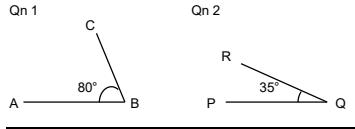
$$\text{Qn 4} \quad \angle EFH = 73^\circ \quad \angle EFJ = 107^\circ \quad \angle EFH + \angle EFJ = 180^\circ$$

$$\begin{array}{ll} \text{Qn 5} & \\ \text{(a) } \angle DCE &= 52^\circ & \angle ECB &= 38^\circ \\ & \angle DCE + \angle ECB &= 90^\circ & \\ \text{(b) } \angle DCE &= 34^\circ & \angle ECB &= 56^\circ \\ & \angle DCE + \angle ECB &= 90^\circ & \\ \text{(c) } \angle DCA &= 30^\circ & \angle ACB &= 60^\circ \\ & \angle DCA + \angle ACB &= 90^\circ & \end{array}$$

Qn 6
 $\angle w = 80^\circ$ $\angle x = 140^\circ$ $\angle y = 26^\circ$ $\angle z = 68^\circ$

Qn 7
 $\angle a = 317^\circ$ $\angle b = 128^\circ$ $\angle c = 130^\circ$ $\angle d = 67^\circ$

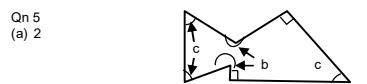
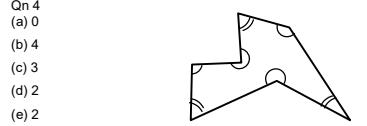
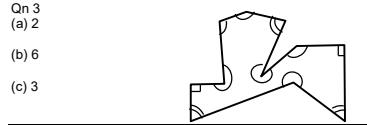
Unit 3.3 – Constructing Angles (Basics)



Unit 3.4 – Fraction of Right Angles

- Qn 1
(a) $\frac{1}{2}$ -turn = 180° (b) $\frac{1}{4}$ -turn = 90°
(c) $1\frac{3}{4}$ -turn = 630° (d) 2-turns = 720°

- Qn 2
There are 4 angles.



Unit 3.5 – 8 Point Compass

Qn 1

If Mary faces	She makes a	She will face
East	$\frac{1}{2}$ -turn to her right/left	West
South	$\frac{1}{2}$ -turn to her right	North
North-east	$\frac{1}{4}$ -turn to her right	South-east
South	$\frac{3}{4}$ -turn to her left	West
South-west	$\frac{3}{4}$ -turn to her left	North-west
South-east	2-turns to her right	South-east

Qn 2

If Jacintha faces	She makes a	She will face
North	$\frac{3}{4}$ -turn to her right	West
South-west	$\frac{1}{2}$ -turn to her left	North-east
North-east	$\frac{1}{4}$ -turn to her right	South-east
North-west	$\frac{3}{4}$ -turn to her left	North-east
South-east	$\frac{3}{4}$ -turn to her left	South-west
North-east	$\frac{1}{4}$ -turn to her right	South-east

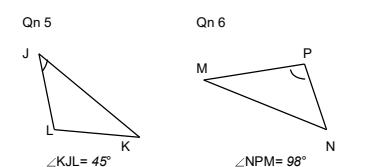
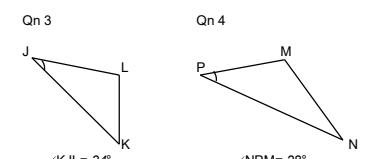
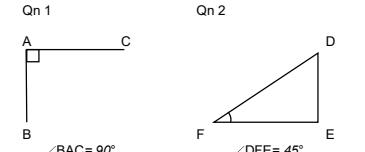
Qn 3

If Michael faces the	He makes a	He will face the
MRT Station	$\frac{1}{2}$ -turn to his left	Bus stop
Food centre	$\frac{1}{4}$ -turn to his left	Library
Swimming pool	$\frac{1}{4}$ -turn to his left	Food centre
Bus stop	$\frac{3}{4}$ -turn to his left	Stadium
Food centre	$\frac{1}{4}$ -turn to his right	Swimming pool
Stadium	$\frac{1}{2}$ -turn to his right/left	Community centre
MRT Station	$\frac{1}{4}$ -turn to his left OR $\frac{3}{4}$ -turn to the right	Stadium

Qn 6

If Ryan faces the	He makes a	He will face the
Furniture Shop (West)	270° clockwise turn	Airport (South)
East	180° clockwise turn	Furniture Shop (West)
Airport	270° clockwise turn	Jewellery Shop (East)
Supermarket	90° clockwise turn	Cake Shop (North-east)
Cinema (South-east)	90° clockwise turn	Swimming pool
Airport	135° clockwise turn	Supermarket

Unit 3.6 – Constructing Angles (Intermediate)



Chapter 4 Decimals

unit 4.1 – Identifying Decimal Places

- Qn 1
- (a) tenths
 - (b) hundredths
 - (c) thousandths
 - (d) ones
 - (e) hundredths
 - (f) thousandths
 - (g) tenths
 - (h) thousandths

- Qn 2
 (a) 0.007 / 7 thousandths (b) 0.04 / 4 hundredths
 (c) 0.3 / 3 tenths (d) 0.006 / 6 thousandths

- Qn 3
 (a) $5 + 0.6 + 0.03 + 0.004 = 5.634$
 (b) $120 + 0.6 + 0.04 = 120.64$
 (c) $1.2 + 0.012 = 1.212$
 (d) $2.5 + 0.05 + 0.012 = 2.562$
 (e) $4.0 + 0.12 + 0.005 = 4.125$
 (f) $210 + 1.2 + 0.42 = 211.62$
 (g) $420 + 1.7 + 0.054 = 421.754$
 (h) $42 + 2.8 + 0.12 = 44.92$
 (i) $72 + 0.13 + 0.002 = 72.132$
 (j) $1.29 + 0.024 = 1.314$

unit 4.2 – Comparing and Ordering Decimals

- Qn1 0.65 Qn 2 95.59 Qn 3 45.327
 Qn 4 29.102 Qn 5 12.124 Qn 6 124.05
 Qn 7 13.405 Qn 8 0.25, 0.254, 0.42
 Qn 9 0.304, 0.340, 0.403
 Qn 10 0.571, 0.715, 0.751
 Qn 11 12.415, 12.421, 12.541
 Qn 12 26.721, 27.261, 27.621
 Qn 13 16.457, 16.475, 16.754
 Qn 14 81.542, 105.524, 108.452

unit 4.3.1 – Converting Fractions into Decimals (Tenths)

- Qn 1 0.6 Qn 2 0.8 Qn 3 1.7 Qn 4 2.1
 Qn 5 5.2 Qn 6 6.0 Qn 7 0.2 Qn 8 0.5
 Qn 9 1.3 Qn 10 1.7 Qn 11 1.8 Qn 12 2.6

unit 4.3.2 – Converting Fractions into Decimals (Hundredths)

- Qn 1 0.06 Qn 2 0.25 Qn 3 0.40 Qn 4 1.24
 Qn 5 0.28 Qn 6 0.35 Qn 7 1.04 Qn 8 3.02
 Qn 9 5.2 Qn 10 4.25 Qn 11 0.75 Qn 12 0.48
 Qn 13 1.68 Qn 14 3.4 Qn 15 1.34 Qn 16 2.48

Unit 4.3.3 – Converting Fractions into Decimals (Thousandths)

- Qn 1 0.006 Qn 2 0.008 Qn 3 0.042
 Qn 4 0.035 Qn 5 0.482 Qn 6 0.125
 Qn 7 1.234 Qn 8 4.256 Qn 9 0.006
 Qn 10 0.012 Qn 11 0.035 Qn 12 0.324
 Qn 13 0.525 Qn 14 4.256 Qn 15 2.032
 Qn 16 6.25 Qn 17 2.75 Qn 18 5.375
 Qn 19 6.625 Qn 20 5.192

unit 4.4 – Rounding off

- Qn 1 34 Qn 2 9 Qn 3 2 Qn 4 12
 Qn 5 13 Qn 6 34 Qn 7 24.5 Qn 8 84.1
 Qn 9 22.0 Qn 10 15.3 Qn 11 9.9 Qn 12 5.5
 Qn 13 37.82 Qn 14 15.05 Qn 15 5.21 Qn 16 31.35

unit 4.5 – Converting Decimals into Fractions

- Qn 1 $\frac{96}{100} = \frac{24}{25}$ Qn 2 $\frac{43}{50}$ Qn 3 $12\frac{6}{10} = 12\frac{3}{5}$
 Qn 4 $42\frac{41}{50}$ Qn 5 $3\frac{1}{4}$ Qn 6 $8\frac{4}{25}$
 Qn 7 $37\frac{101}{125}$ Qn 8 $112\frac{173}{500}$ Qn 9 $2\frac{12}{25}$
 Qn 10 $134\frac{9}{20}$ Qn 11 $1\frac{21}{25}$ Qn 12 $45\frac{4}{5}$

unit 4.6 – Addition and Subtraction of Decimals

- Qn 1 $12 + 0.25 + 0.04 = 12.29$
 Qn 2 $26 + 0.8 + 0.32 = 27.12$
 Qn 3 $8 + 0.2 + 0.52 = 8.72$
 Qn 4 $2 + 0.4 + 0.24 = 2.64$
 Qn 5 $0.9 + 84.9 = 85.8$ Qn 6 $0.24 + 24.5 = 24.74$
 Qn 7 146.85 Qn 8 237.97
 Qn 9 95.31 Qn 10 173.9
 Qn 11 $63.2 - 1.2 = 62$ Qn 12 $12.8 - 0.31 = 12.49$
 Qn 13 56.86 Qn 14 74.28
 Qn 15 36.54 Qn 16 15.2

Qn 17
 Amount of change received = $\$50.00 - \$18.30 - \$7.80$
 = $\$23.90$

Qn 18
 Amount short of = $\$85 - \$23.50 - \$30.20 - \21.80
 = $\$9.50$

Qn 19
 Amount left = $\$20 - \$4.50 - \$3.20 - \2.70
 = $\$9.60$

Unit 4.7 – Multiplication of Decimals

- Qn 1 Amount received = $\$345.50 \times 8$
 = $\$2764$
 Qn 2 Cost of parcel = $3 \text{ kg} \times \$1.26$
 = $\$3.78$
 Qn 3 Amount paid = $\$54.20 \times 9$
 = $\$487.80$

Qn 4 Total length of cloth = 26.42×8
 = 211.36 m

Qn 5 Amount of water stored = $1.25 \text{ t} \times 7$
 = 8.75 t

Qn 6 Changed received = $\$100 - \8.40×8
 = $\$32.80$

Qn 7 Cost of MP3 = $4 \times \$18.40$
 = $\$73.60$
 Total cost = $\$73.60 + \18.40
 = $\$92$

Qn 8 8 cups cost = $8 \times \$2.30$
 = $\$18.40$
 5 plates cost = $\$4.50 \times 5$
 = $\$22.50$
 Total cost = $\$18.40 + \22.50
 = $\$40.90$

unit 4.8 – Division of Decimals

Qn 1 1.6	Qn 2 1.5	Qn 3 6.25	Qn 4 2.5
$\begin{array}{r} 1.6 \\ \hline 5 \\ \underline{-} 5 \\ 0 \end{array}$	$\begin{array}{r} 1.5 \\ \hline 4 \\ \underline{-} 4 \\ 0 \end{array}$	$\begin{array}{r} 6.25 \\ \hline 4 \\ \underline{-} 4 \\ 25 \\ \underline{-} 24 \\ 10 \\ \underline{-} 8 \\ 20 \\ \underline{-} 20 \\ 0 \end{array}$	$\begin{array}{r} 2.5 \\ \hline 8 \\ \underline{-} 16 \\ 20 \\ \underline{-} 16 \\ 40 \\ \underline{-} 40 \\ 0 \end{array}$

Qn 4 Amount paid daily = $\$196 \div 8$
 = $\$24.50$

Qn 5 Cost of each pen = $\$42 \div 8$
 = $\$5.25$

Qn 6 Mass of each packet = $145.2 \text{ kg} \div 6$
 = 24.2 kg

Qn 7

2 magazines = $2 \times \$4.50$
 = $\$9$
 $\$9 + \6.20 = $\$15.20$
 6 pens = $\$50 - \15.20
 = $\$34.80$
 1 pen = $\$34.80 \div 6$
 = $\$5.80$

Qn 8

3 calculators = $3 \times \$15.50$
 = $\$46.50$
 $\$46.50 + \4.50 = $\$51$
 5 towels = $\$100 - \51
 = $\$49$
 1 towel = $\$49 \div 5$
 = $\$9.80$

Chapter 5 Area and Perimeter

Unit 5.1 – Finding Area and Perimeter with Given Sides

Qn 1
 (a) Area = $7 \text{ cm} \times 3 \text{ cm}$
 Perimeter = $(7 \text{ cm} + 3 \text{ cm}) \times 2$
 = 20 cm

(b) Area = $13 \text{ cm} \times 4 \text{ cm}$
 Perimeter = $(13 \text{ cm} + 4 \text{ cm}) \times 2$
 = 34 cm

(c) Area = $18 \text{ cm} \times 12 \text{ cm}$
 Perimeter = $(18 \text{ cm} + 12 \text{ cm}) \times 2$
 = 60 cm

Qn 2
 (a) Area = $7 \text{ cm} \times 7 \text{ cm}$
 Perimeter = $7 \text{ cm} \times 4$
 = 28 cm

(b) Area = $15 \text{ cm} \times 15 \text{ cm}$
 Perimeter = $15 \text{ cm} \times 4$
 = 60 cm

(c) Area = $13 \text{ cm} \times 13 \text{ cm}$
 Perimeter = $13 \text{ cm} \times 4$
 = 52 cm

Unit 5.2 – Finding Sides with Given Area OR Perimeter

Qn 1
 (a) Breadth = $72 \text{ cm}^2 \div 9 \text{ cm}$
 = 8 cm
 Perimeter = $(9 \text{ cm} + 8 \text{ cm}) \times 2$
 = 34 cm

(b) Breadth = $150 \text{ cm}^2 \div 15 \text{ cm}$
 = 10 cm
 Perimeter = $(15 \text{ cm} + 10 \text{ cm}) \times 2$
 = 50 cm

(c) Length = $84 \text{ cm}^2 \div 4 \text{ cm}$
 = 21 cm
 Perimeter = $(21 \text{ cm} + 4 \text{ cm}) \times 2$
 = 50 cm

(d) Length = $150 \text{ cm}^2 \div 10 \text{ cm}$
 = 15 cm
 Perimeter = $(15 \text{ cm} + 10 \text{ cm}) \times 2$
 = 50 cm

Qn 2
 (a) Length = 3 cm
 Perimeter = $3 \text{ cm} \times 4$
 = 12 cm

(b) Length = 8 cm
 Perimeter = $8 \text{ cm} \times 4$
 = 32 cm

(c) Length = 6 cm
 Perimeter = $6 \text{ cm} \times 4$
 = 24 cm

(d) Length = 5 cm
 Perimeter = $5 \text{ cm} \times 4$
 = 20 cm

Qn 3
 (a) Length = $24 \text{ cm} \div 4$
 = 6 cm
 Area = $6 \text{ cm} \times 6 \text{ cm}$
 = 36 cm^2

Qn 3 (Cont.)

(b) Length = $44 \text{ cm} \div 4$
 $= 11 \text{ cm}$
Area = $11 \text{ cm} \times 11 \text{ cm}$
 $= 121 \text{ cm}^2$

(c) Length = $64 \text{ cm} \div 4$
 $= 16 \text{ cm}$
Area = $16 \text{ cm} \times 16 \text{ cm}$
 $= 256 \text{ cm}^2$

(d) Length = $56 \text{ cm} \div 4$
 $= 14 \text{ cm}$
Area = $14 \text{ cm} \times 14 \text{ cm}$
 $= 196 \text{ cm}^2$

Unit 5.3 – Area and Perimeter of Composite Figures (Basics)

Qn 1
 $20 - 8 = 12$
 $12 \div 2 = 6$
 $16 - 6 = 10$
 $10 \div 2 = 5$
Area A = $16 \text{ cm} \times 6 \text{ cm}$
 $= 96 \text{ cm}^2$
Area B = $10 \text{ cm} \times 6 \text{ cm}$
 $= 60 \text{ cm}^2$
Area C = $8 \text{ cm} \times 5 \text{ cm}$
 $= 40 \text{ cm}^2$
Total Area = $96 \text{ cm}^2 + 60 \text{ cm}^2 + 40 \text{ cm}^2$
 $= 196 \text{ cm}^2$
Total Perimeter = $(16 + 20) \times 2$
 $= 72 \text{ cm}$

Qn 2
Area A = $22 \text{ cm} \times 4 \text{ cm}$
 $= 88 \text{ cm}^2$
Area B = $8 \text{ cm} \times 8 \text{ cm}$
 $= 64 \text{ cm}^2$
Area C = $8 \text{ cm} \times 4 \text{ cm}$
 $= 32 \text{ cm}^2$
Total Area = $88 \text{ cm}^2 + 64 \text{ cm}^2 + 32 \text{ cm}^2$
 $= 184 \text{ cm}^2$
Total Perimeter = $(22 \text{ cm} + 4 \text{ cm} + 16 \text{ cm}) \times 2$
 $= 84 \text{ cm}$

Qn 3
Area of big square = $14 \text{ cm} \times 14 \text{ cm}$
 $= 196 \text{ cm}^2$
Area of 4 small squares = $3 \text{ cm} \times 3 \text{ cm} \times 4$
 $= 36 \text{ cm}^2$
Area of remaining figure = $196 \text{ cm}^2 - 36 \text{ cm}^2$
 $= 160 \text{ cm}^2$
Perimeter of remaining figure = $14 \text{ cm} \times 4$
 $= 56 \text{ cm}$

Qn 4
Area of big square = $18 \text{ cm} \times 18 \text{ cm}$
 $= 324 \text{ cm}^2$
Area of 4 small squares = $4 \text{ cm} \times 4 \text{ cm} \times 4$
 $= 64 \text{ cm}^2$
Area of remaining figure = $324 \text{ cm}^2 - 64 \text{ cm}^2$
 $= 260 \text{ cm}^2$
Perimeter of remaining figure = $18 \text{ cm} \times 4$
 $= 72 \text{ cm}$

Qn 5

Area of rectangle = $14 \text{ cm} \times 10 \text{ cm}$
 $= 140 \text{ cm}^2$
Area of 4 squares = $2 \text{ cm} \times 2 \text{ cm} \times 4$
 $= 16 \text{ cm}^2$
Area of remaining figure = $140 \text{ cm}^2 - 16 \text{ cm}^2$
 $= 124 \text{ cm}^2$
Perimeter of remaining figure = $(14 \text{ cm} + 10 \text{ cm}) \times 2$
 $= 48 \text{ cm}$

Qn 6

Area of rectangle = $22 \text{ cm} \times 14 \text{ cm}$
 $= 308 \text{ cm}^2$
Area of 4 squares = $2 \text{ cm} \times 2 \text{ cm} \times 4$
 $= 16 \text{ cm}^2$
Area of remaining figure = $308 \text{ cm}^2 - 16 \text{ cm}^2$
 $= 292 \text{ cm}^2$
Perimeter of remaining figure = $(22 \text{ cm} + 14 \text{ cm}) \times 2 + 4 \text{ cm} + 4 \text{ cm}$
 $= 72 \text{ cm} + 8 \text{ cm}$
 $= 80 \text{ cm}$

Unit 5.4 – Area and Perimeter of Proportional Figures

Qn 1
Length x Breadth = 108 cm^2
3 units x 1 unit = 108 cm^2
1 unit x 1 unit = $108 \text{ cm}^2 \div 3$
 $= 36 \text{ cm}^2$

1 unit = 6 cm
Length = 18 cm
Breadth = 6 cm
Perimeter = $(18 \text{ cm} + 6 \text{ cm}) \times 2$
 $= 48 \text{ cm}$

Qn 2

Length x Breadth = 64 cm^2
4 units x 1 unit = 64 cm^2
1 unit x 1 unit = $64 \text{ cm}^2 \div 4$
 $= 16 \text{ cm}^2$

1 unit = 4 cm
Length = 16 cm
Breadth = 4 cm
Perimeter = $(16 \text{ cm} + 4 \text{ cm}) \times 2$
 $= 40 \text{ cm}$

Qn 3

Length x Breadth = 27 cm^2
3 units x 1 unit = 27 cm^2
1 unit x 1 unit = $27 \text{ cm}^2 \div 3$
 $= 9 \text{ cm}^2$

1 unit = 3 cm
Length = 9 cm
Breadth = 3 cm
Perimeter = $(9 \text{ cm} + 3 \text{ cm}) \times 2$
 $= 24 \text{ cm}$

Qn 4

Breadth = 2 units
Length = 3 units

2 units x 3 unit = 54 cm^2
1 unit x 1 unit = $54 \text{ cm}^2 \div 6$
 $= 9 \text{ cm}^2$

Qn 4 (Cont.)

1 unit = 3 cm
Breadth = 2×3
 $= 6 \text{ cm}$
Length = 3×3
 $= 9 \text{ cm}$
Perimeter = $(6 \text{ cm} + 9 \text{ cm}) \times 2$
 $= 30 \text{ cm}$

Qn 5

Breadth = 3 units
Length = 4 units

3 units x 4 unit = 192 cm^2
1 unit x 1 unit = $192 \text{ cm}^2 \div 12$
 $= 16 \text{ cm}^2$
1 unit = 4 cm

Breadth = 3×4
 $= 12 \text{ cm}$
Length = 4×4
 $= 16 \text{ cm}$
Perimeter = $(12 \text{ cm} + 16 \text{ cm}) \times 2$
 $= 56 \text{ cm}$

Unit 5.5 – Area and Perimeter of Squares using Guess and Check

Qn 1
Guess-and-Check:
 $100 - 49 = 51$
 $(10 \times 10) - (5 \times 5) = 51$
Area of big square = 100 m^2 ($10 \text{ m} \times 10 \text{ m}$)
Area of garden = $100 \text{ m}^2 - 51 \text{ m}^2$
 $= 49 \text{ m}^2$ ($7 \text{ m} \times 7 \text{ m}$)

Qn 2
Guess-and-Check:
 $144 - 64 = 80$
 $(12 \times 12) - (8 \times 8) = 80$
Area of big square = 144 m^2 ($12 \text{ m} \times 12 \text{ m}$)
Area of garden = $144 \text{ m}^2 - 80 \text{ m}^2$
 $= 64 \text{ m}^2$ ($8 \text{ m} \times 8 \text{ m}$)

Qn 3

Length of square garden = $36 \text{ m} \div 4$
 $= 9 \text{ m}$
Area of square garden = $9 \text{ m} \times 9 \text{ m}$
 $= 81 \text{ m}^2$
Area of big square = $12 \text{ m} \times 12 \text{ m}$
 $= 144 \text{ m}^2$
Area of path = $144 \text{ m}^2 - 81 \text{ m}^2$
 $= 63 \text{ m}^2$

Qn 4

Length of pool = $64 \text{ m} \div 4$
 $= 16 \text{ m}$
Area of swimming pool = $16 \text{ m} \times 16 \text{ m}$
 $= 256 \text{ m}^2$
Area of square = $20 \text{ m} \times 20 \text{ m}$
 $= 400 \text{ m}^2$
Area of border = $400 \text{ m}^2 - 256 \text{ m}^2$
 $= 144 \text{ m}^2$

Qn 5

Length of square garden = 8 m
Area of big square = $(8 + 6) \text{ m} \times (8 + 6) \text{ m}$
 $= 14 \text{ m} \times 14 \text{ m}$
 $= 196 \text{ m}^2$
Area of pathway = $196 \text{ m}^2 - 64 \text{ m}^2$
 $= 132 \text{ m}^2$

Qn 6

Length of small square = 8 cm
Length of big square = $8 \text{ cm} + 4 \text{ cm}$
 $= 12 \text{ cm}$
Area of big square = $12 \text{ cm} \times 12 \text{ cm}$
 $= 144 \text{ cm}^2$

Qn 7
Since $64 - 16 = 48$
Area of big square = 64 cm^2

Qn 8
Since $36\text{cm}^2 + 64\text{cm}^2 = 100 \text{ cm}^2$
Length of small square = 6 cm
Length of big square = 8 cm
Total perimeter = $(6 \text{ cm} + 8 \text{ cm}) \times 2$
 $= 44 \text{ cm}$

Qn 9
Since $81 \text{ cm}^2 + 144 \text{ cm}^2 = 225 \text{ cm}^2$
Length of small square = 9 cm
Length of big square = 12 cm
Total perimeter of figure = $(12 \text{ cm} + 12 \text{ cm} + 9 \text{ cm}) \times 2$
 $= 66 \text{ cm}$

Unit 5.6 – Area and Perimeter of Composite Figures (Intermediate)

Qn 1

Area of garden = $9 \text{ m} \times 5 \text{ m}$
 $= 45 \text{ m}^2$
Area of big rectangle = $13 \text{ m} \times 9 \text{ m}$
 $= 117 \text{ m}^2$
Area of pathway = $117 \text{ m}^2 - 45 \text{ m}^2$
 $= 72 \text{ m}^2$

Qn 2

Area of garden = $13 \text{ m} \times 8 \text{ m}$
 $= 104 \text{ m}^2$
Area of pond = $9 \text{ m} \times 4 \text{ m}$
 $= 36 \text{ m}^2$
Area of pathway = $104 \text{ m}^2 - 36 \text{ m}^2$
 $= 68 \text{ m}^2$

Qn 3

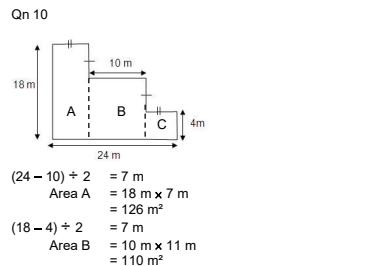
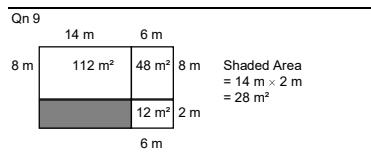
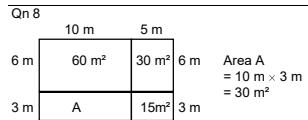
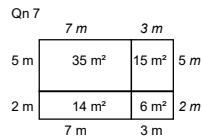
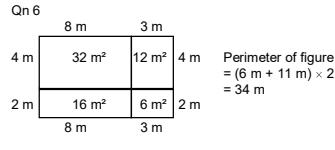
Perimeter of garden = $(2 \text{ units} + 1 \text{ unit}) \times 2$
 $= 6 \text{ units}$
6 units = 48 m
1 unit = 8 m
Area of garden = $16 \text{ m} \times 8 \text{ m}$
 $= 128 \text{ m}^2$
Area of big rectangle = $20 \text{ m} \times 12 \text{ m}$
 $= 240 \text{ m}^2$
Area of pathway = $240 \text{ m}^2 - 128 \text{ m}^2$
 $= 112 \text{ m}^2$

Qn 4

Area of pond = $3 \text{ units} \times 1 \text{ units}$
 $= 48 \text{ m}^2$
1 unit x 1 unit = $48 \text{ m}^2 \div 3$
 $= 16 \text{ m}^2$
1 unit = 4 m
Length (pond) = 12 m
Breadth (pond) = 4 m
Area of big rectangle = $14 \text{ m} \times 6 \text{ m}$
 $= 84 \text{ m}^2$
Area of pathway = $84 \text{ m}^2 - 48 \text{ m}^2$
 $= 36 \text{ m}^2$

Qn 5

Area of field	= 2 units \times 1 units
	= 3200 m ²
1 unit \times 1 unit	= 1600 m ²
1 unit	= 40 m
Length (field)	= 80 m
Breadth (field)	= 40 m
Area of big rectangle	= 90 m \times 50 m
	= 4500 m ²
Area of track	= 4500 m ² – 3200 m ²
	= 1300 m ²



Qn 10 (Cont.)

Area C	= 7 m \times 4 m
	= 28 m ²
Total area	= $126 \text{ m}^2 + 110 \text{ m}^2 + 28 \text{ m}^2$
	= 264 m ²
Perimeter	= $(18 \text{ m} + 24 \text{ m}) \times 2$
	= 84 m

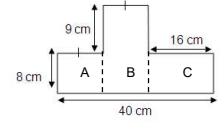
Qn 11

Area of rectangle	= 40 cm \times 24 cm
	= 960 cm ²
Area of square	= 14 cm \times 14 cm
	= 196 cm ²
Area of remaining figure	= $960 \text{ cm}^2 - 196 \text{ cm}^2$
	= 764 cm ²
Perimeter of figure	= $(40 \text{ cm} + 24 \text{ cm}) \times 2 + 14 \text{ cm} \times 2$
	= 128 cm + 28 cm
	= 156 cm

Qn 12

$24 \div 3$	= 8 m
Area A	= $16 \text{ m} \times 8 \text{ m}$
	= 128 m ²
Area B	= $8 \text{ m} \times 10 \text{ m}$
	= 80 m ²
$(16 - 6) \div 2$	= 5 m
Area C	= $8 \text{ m} \times 5 \text{ m}$
	= 40 m ²
Total Area	= $128 \text{ m}^2 + 80 \text{ m}^2 + 40 \text{ m}^2$
	= 248 m ²
Total Perimeter	= $(24 \text{ m} + 16 \text{ m}) \times 2$
	= 80 m

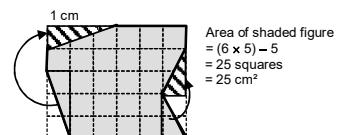
Qn 13



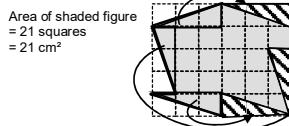
$(40 - 16) \div 2$	= 12 cm
Area of A	= $8 \text{ cm} \times 12 \text{ cm}$
	= 96 cm ²
Area of B	= $17 \text{ cm} \times 12 \text{ cm}$
	= 204 cm ²
Area of C	= $16 \text{ cm} \times 8 \text{ cm}$
	= 128 cm ²
Total area	= $96 \text{ cm}^2 + 204 \text{ cm}^2 + 128 \text{ cm}^2$
	= 428 cm ²
Total perimeter	= $(40 \text{ cm} + 9 \text{ cm} + 8 \text{ cm}) \times 2$
	= 114 m

Unit 5.7 – Area using Cut and Paste

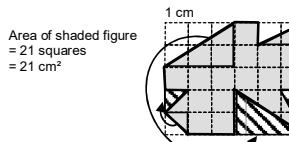
Qn 1



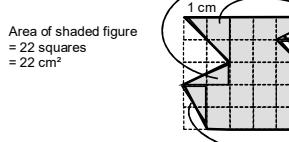
Qn 2



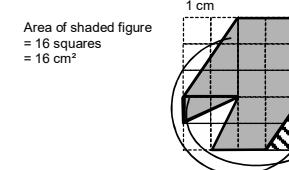
Qn 3



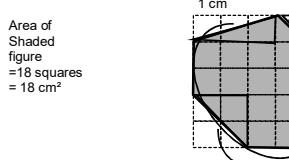
Qn 4



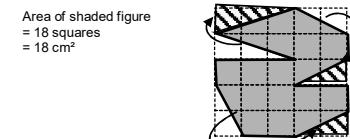
Qn 5



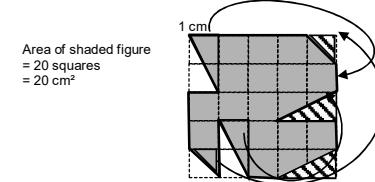
Qn 6



Qn 7



Qn 8



Chapter 6 Graphs

Unit 6.1 – Interpreting Line Graphs

Qn 1(a) 12 pm (b) 4 (c) 13 (d) 22 (e) 4

Qn 2(a) \$16 000 (b) 2007 (c) \$24 000 – \$4 000 = \$20 000

Qn 3(a) 48 kg (b) April or May (c) 38 kg (d) June

Qn 4(a) Total = $8 + 14 + 18 + 34 + 26 = 100$
(b) $34 + 26 = 60$ (c) $26 - 14 = 12$ (d) $8 + 14 = 22$

Qn 5(a) Total = $11 + 13 + 9 + 15 + 27 = 75$
(b) $27 - 13 = 14$ (c) Friday (d) $11 + 13 + 9 = 33$

Qn 6(a) 37.7°C
(b) 11 a.m., 2 p.m. and 4 p.m.
(c) 9 a.m. to 10 a.m., 2 p.m. to 3 p.m.
(d) 7 hours, from 10 a.m. to 5 p.m.

Chapter 7 Time

Unit 7.1 – Measurement of Time in Seconds

Qn1 252 s Qn2 754 s Qn3 1928 s Qn4 1324 s
Qn5 3602 s Qn6 2520 s Qn7 7242 s Qn8 4500 s

Unit 7.2 – Addition and Subtraction of Time in Seconds

Qn1 12 min 33 s = 753 s Qn2 42 min 69 s = 2589 s
Qn3 50 min 35 s = 3035 s Qn4 975 s – 445 s = 530 s

Qn5 864 s - 175 s = 689 s	Qn6 981 s - 515 s = 466 s
Qn7 1163 s - 1005 s = 158 s	Qn8 17 min 43 s
Qn9 28 min 41 s	Qn10 16 min 25 s
Qn11 3780 s - 2542 s = 1238 s	Qn12 7225 s - 4500 s = 2725 s
Qn13 11712 s - 4980 s = 6732 s	

Unit 7.3 – Conversion into 24-hour Clock

Qn1 1412 h	Qn2 0824 h	Qn3 2145 h
Qn4 0024 h	Qn5 2400 h or 0000 h	
Qn6 0315 h	Qn7 1455 h	Qn8 2359 h
Qn9 1718 h	Qn10 1024 h	Qn11 2348 h
Qn12 1616 h	Qn13 4.25 p.m.	Qn14 7.35 a.m.
Qn15 11.15 p.m.	Qn16 6.10 p.m.	Qn17 11.59 p.m.
Qn18 12.16 p.m.	Qn19 9.06 a.m.	Qn20 11.59 a.m.
Qn21 1.12 p.m.	Qn22 9.26 a.m.	Qn23 12.55 p.m.
Qn24 1.14 p.m.	Qn25 2.17 p.m.	Qn26 12 midnight

Unit 7.4 Word Problems Involving Time

Qn1	3 h 20 min	20 min	15 min	2 h	45 min
09 20 → 12 40 → 13 00 → 13 15 → 15 11 → 16 00 He reached KL at 1600 h					
Qn 2					
4 h 45 min					
13 05	17 50	18 50	19 00	19 05	21 47
The coach reached Town B at 2147 h.					

Qn 3	25 min	5 min	35 min
05 30 → 05 55 → 06 00 → 06 35 John would reach the school at 635 a.m..			

Qn 4	15min	10min
Time Mrs Jones reach the park 0745 → 0800 0810		
Time Mrs Jones left the park 0905 → 0900 0840		
Time taken to exercise 0810 → 0840 The exercise lasted 30 minutes.		

Qn 5	Time taken for multiple choice questions	= 5 min × 10
		= 50 min
Qn 6		
Time taken for work problems		
= 18 min × 8		
= 144 min		
Time taken altogether		
min		
= 50 min + 144		
= 194 min		
= 3 hr 14 min		

John completed his trial paper at 1729 h.

Chapter 8 Review

Unit 8 Review

Qn 1

D	1u	15	1u	15	1u	15
R	1u	15				
M	1u	15				

$4 \times \$15 = \60
 $\$60 - \$130 = -\$70$
 $\$70 = \$70 \div 5$
 $= \$14$
 Mark has **\\$14**.

Qn 2

∠ b	1u	1u
∠ a	1u	
∠ c	1u	51

$90^\circ - 42^\circ = 48^\circ$

$3u = 48^\circ$
 $1u = 48^\circ \div 3$
 $= 16^\circ$
 $\angle c = 16^\circ + 51^\circ$
 $= 67^\circ$

Qn 3

B	1u	1u	$\times 5$	
S	1u	1u	$\times 4$	

$10u + \$12u = 22u$
 $22u = \$330 \div 22$
 $= \$15$
 $1u = 3 \times \$15$
 $= \$45$

Qn 4

Time Mrs Jones reach the park 0745 → 0800

0810

5min

20mins

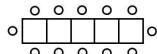
Time Mrs Jones left the park 0905 → 0900	30mins
--	--------

Time taken to exercise 0810 → 0840

The exercise lasted 30 minutes.

Qn 4

(a)



(b)

Total chairs = 11×2

= 22

(c)

Total chairs = 21×2

= 42

(d)

$128 \div 2 = 64$

Figure no. = $64 - 1$

= 63

Qn 7 (Cont.)

At first

D	2u	3u
W	2u	140

} 588

$$7u = 588 - 140$$

$$= 448$$

$$1u = 448 \div 7$$

$$= 64$$

$$5u = 5 \times 64$$

$$= 320$$

Daniel had \$320 at first.

Qn 8

Note : First sentence should be "Dennis and Amron shared a sum of money equally."

At first

D	
A	

End

D	1u	5u
A		128

} 467

$$7u = 128 + 467$$

$$= 595$$

$$1u = 595 \div 7$$

$$= 85$$

$$6u = 6 \times 85$$

$$= 510$$

Dennis had \$510 at first.

Qn 9

E	1u	12
D	1u	
F	1u	12

} 246

$$3 \times 12 = 36$$

$$6u = 246 - 36$$

$$= 210$$

$$1u = 210 \div 6$$

$$= 35$$

$$3u = 3 \times 35$$

$$= 105$$

$$3u + 12 = 105 + 12$$

$$= 117$$

Fion has 117 more muffins than Eric.

Qn 10

Length of 1 small square = $32 \div 4$

$$= 8 \text{ cm}$$

Length AB = $8 \text{ cm} \times 3$

$$= 24 \text{ cm}$$

$$\text{Area} = 24 \text{ cm} \times 24 \text{ cm}$$

$$= 576 \text{ cm}^2$$

Qn 26 (Cont.)

$$\begin{aligned}\text{Gap} &= 42 + 34 \\&= 76 \\ \text{Difference} &= 2 \text{ sweets per pupil} \\(\text{a}) \quad \text{No. of pupils} &= 76 \div 2 \\&= 38 \\ \text{There are } 38 \text{ pupils.} \\(\text{b}) \quad \text{No. of sweets} \\C_1: \quad 5 \times 38 &= 190 \\190 + 42 &= 232 \\C_2: \quad 7 \times 38 &= 266 \\266 - 34 &= 232\end{aligned}$$

Miss Goh has 232 sweets.

Qn 27

$$\begin{aligned}(\text{a}) \quad \text{No. of squares in Pattern 1} &= 2 \times 4 \\&= 8 \\ \text{No. of squares in Pattern 2} &= 3 \times 4 \\&= 12 \\ \text{No. of squares in Pattern 8} &= 9 \times 4 \\&= 36 \\ \text{There are 36 tiles in pattern 8.} \\(\text{b}) \quad \text{No. of squares in Pattern 20} &= 21 \times 4 \\&= 84 \\ \text{There are 84 tiles in Pattern 20.}\end{aligned}$$

Qn 28

At first

K	[]
J	[]

End

K	1u	36
J	1u	36

1u

$$\begin{aligned}1u &= 36 + 65 \\&= 101 \\101 + 36 &= 137 \\ \text{Each of them had 137 stickers at first.}\end{aligned}$$

Qn 29

Actual amount of money

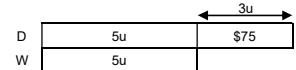
C1	8 kg of sugar	4 kg of sugar
C2	8 kg of sugar	2

Gap

$$\begin{aligned}\text{Gap} &= 2 + 10 \\&= 12 \\ \text{Difference} &= 4 \text{ kg of sugar} \\4 \text{ kg of sugar} &= 12 \\1 \text{ kg of sugar} &= 12 \div 4 \\&= 3 \\1 \text{ kg of sugar cost } \$3.\end{aligned}$$

Qn 30

$$\begin{aligned}\frac{1}{2} D &= \frac{4}{5} W \\2 \times \frac{1}{2} D &= 2 \times \frac{4}{5} W \\D &= \frac{4}{5} W \\D &= 8u \\W &= 5u\end{aligned}$$



$$\begin{aligned}3u &= 75 \\1u &= 75 \div 3 \\&= 25 \\ \text{Winnie (at first)} &= 5 \times 25 \\&= 125 \\ \text{Winnie had } \$125 \text{ at first.}\end{aligned}$$

Qn 31

Note: Last sentence should be "How much more did Catherine have than Ally?"

A + B	1u	18	58
C	1u		
B	1u	18	

262

$$\begin{aligned}A &= 76 - 18 \\&= 58 \\B + C &= 320 - 58 \\&= 262 \\2u &= 262 - 18 \\&= 244 \\1u &= 244 \div 2 \\&= 122 \\ \text{Difference} &= 122 - 58 \\&= 64 \\ \text{Ally had } \$64 \text{ more than Catherine.}\end{aligned}$$

Qn 32

Note: Second sentence should be "Mr Lim paid \$1535 for some basketball and football."

B	25
F	25

25	18
----	----

Items	Qty	x	Value (\$)	Total value (\$)
B	1u + 7	x	25	25u + 175
F	1u	x	43	43u
Total	2u + 7	x		68u + 175

$$\begin{aligned}68u &= 1535 - 175 \\&= 1360 \\1u &= 1360 \div 68 \\&= 20 \\(\text{a}) \quad \text{He bought 20 footballs.} \\(\text{b}) \quad 25u &= 25 \times 20 \\&= 500 \\500 + 175 &= 675 \\ \text{Mr Lim spent } \$675 \text{ on the basketball.}\end{aligned}$$

Qn 33

Before

B			
S			

After

B	1u	1u	1u	1u	1u	1u
S	1u	65				

$$\begin{aligned}1u &= 65 \\8u &= 8 \times 65 \\&= 520 \\ \text{Mrs Gomez made 520 tarts to sell.}\end{aligned}$$

Qn 34

Cost

P	1u	1u	1u
M	1u		

For every 3 muffins, Mrs Raj can buy 1 pie.
24 muffins = 8 pies
1u = 8 pies
2u = 16 pies
Mrs Raj could buy 16 pies with the rest of the money.

Qn 35

End

S	1u
M	1u

At first

S	1u	1u
M	1u	35

$$\begin{aligned}3u &= 134 - 35 \\&= 99 \\1u &= 99 \div 3 \\&= 33 \\2u &= 2 \times 33 \\&= 66 \\ \text{Quinnie had 66 stickers at first.}\end{aligned}$$

Qn 36

$$\begin{aligned}\frac{1}{3} P &= \frac{2}{5} A \\3 \times \frac{1}{3} P &= 3 \times \frac{2}{5} A \\P &= \frac{6}{5} A\end{aligned}$$

$$P = 6u$$

$$A = 5u$$

$$\begin{aligned}1u &= 28 \\5u &= 5 \times 28 \\&= 140\end{aligned}$$

Mrs Loh bought 140 apples.

Qn 37

$$\begin{aligned}48 \text{ pens} &= 60 \text{ pencils} \\8 \text{ pens} &= 10 \text{ pencils}\end{aligned}$$

Since 8 pens = 10 pencils, he had already bought
= 16 + 10
= 26 pencils
Difference = 60 - 26
= 34
James can buy 34 more pencils.

Qn 38

$$\begin{aligned}\text{Ribbon B} &= 1u \\ \text{Ribbon A} &= 1u + 12 \\ \text{Ribbon C} &= 1u + 25 \\ \text{Ribbon D} &= 1u + 60\end{aligned}$$

$$\begin{aligned}4u &= 357 - 97 \\&= 260 \\1u &= 65 \\ \text{Ribbon D} &= 65 + 60 \\&= 125\end{aligned}$$

The length of the longest ribbon is 125 cm.

Qn 39

$$\begin{aligned}\text{Amount of money} &= 20 \times 3 \\&= 60 \\ \text{Cost of a bowl of ice cream} &= 3 - 0.5 \\&= 2.5 \\ \text{No. of bowls} &= 60 \div 2.5 \\&= 24 \\ \text{No. of bowls extra} &= 24 - 20 \\&= 4 \\ \text{Melvin can buy 4 more bowls of ice cream.}\end{aligned}$$

Qn 40

$$\begin{aligned}\frac{1}{3} (20c) &= \frac{3}{4} (50c) \\3 \times \frac{1}{3} (20c) &= 3 \times \frac{3}{4} (50c) \\20c &= 9u \\50c &= 13u\end{aligned}$$

$$\begin{aligned}380u &= 5700 \\1u &= 15 \\13u &= 13 \times 15 \\&= 195 \\ \text{There were a total of 195 coins.}\end{aligned}$$

Visit the forum page at www.onSponge.com for more challenging problem sums.



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Essential Problem Solving Skills

- ✓ Lateral and vertical thinking enhanced by questions of varied types, level of difficulty and topic-to-strategy approach
- ✓ Pre-exercises designed to develop conceptual understanding
- ✓ Review section by mixed topics, combined problem solving concepts

www.onSponge.com

Based on Latest
MOE Syllabus

Answers to Unit 1.1 – Highest Common Factors

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 rectangular cookie is **4 cm**.

(b) $5 \times 9 = 45$

Chef Lee can make **45 rectangular 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**

Answers to Unit 1.2 – First Common Multiple

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	4, 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

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

Let's Learn 1.2

Ask Yourself

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

Think Further

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

FCM of 4, 6 and 7 = $2 \times 2 \times 3 \times 7 = 84$

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

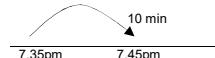
Answers to Unit 1.2 – First Common Multiple

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
5	1, 2, 5
	1, 1, 5

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

FCM of 2, 6 and 15 = $2 \times 3 \times 5 = 30$

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

Question 4

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

LCM of 5, 8 and 12 = $4 \times 5 \times 2 \times 3 = 120$

Olivia has a minimum of **120 paper clips**.

Answers to Unit 1.2 – First Common Multiple

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	9	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

A	1u	15
C	1u	

A	1u	45
S	1u	

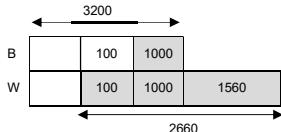
Ask Yourself

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

Answers to Unit 1.3 – More than / Less than

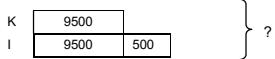
Think Further

1. There would be more black chips left in the bag.



Let's Practise 1.3

Question 1



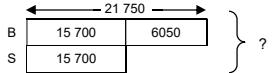
$$9500 + 500 = 10\,000$$

Irene picked 10 000 tea leaves.

$$9500 + 10\,000 = 19\,500$$

They picked 19 500 tea leaves in all.

Question 2



$$21\,750 - 6050 = 15\,700$$

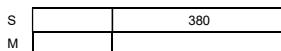
The smaller number is 15 700.

$$15\,700 + 21\,750 = 37\,450$$

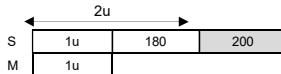
Sum of the two numbers is 37 450.

Question 3

At first



In the end



$$1u = 180$$

$$2u = 180 + 180$$

$$= 360$$

Answers to Unit 1.3 – More than / Less than

Question 3 (Cont.)

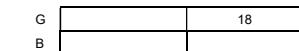
Sheila had 360 seashells in the end.

$$360 + 200 = 560$$

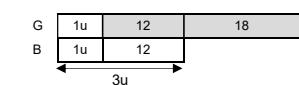
Sheila had **560 seashells** at first.

Question 4

At first



In the end



$$2u = 12$$

$$1u = 12 \div 2$$

$$= 6$$

There were 6 girls at the library in the end.

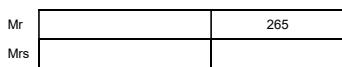
$$6u + 18 = 6 \times 6 + 18$$

$$= 54$$

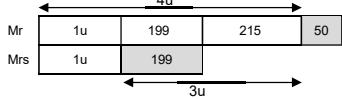
There were **54 children** at the library first.

Question 5

At first



In the end



$$3u = 199 + 215$$

$$= 414$$

$$1u = 414 \div 3$$

$$= 138$$

Mrs Lim had 138 button pins in the end.

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

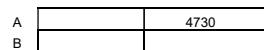
$$= 939$$

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

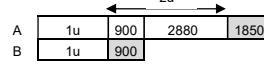
Answers to Unit 1.3 – More than / Less than

Question 6

At first



In the end



$$2u = 900 + 2880$$

$$= 3780$$

$$1u = 3780 \div 2$$

$$= 1890$$

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

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

$$= 2790$$

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

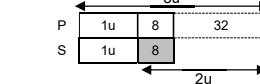
Answers to Unit 1.4 – More than / Less than

5.

In the end



At first



Let's Learn 1.4

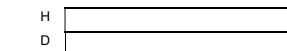
Ask Yourself

- From 'At first' since it is given in the question that Sandy and Ella have 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.

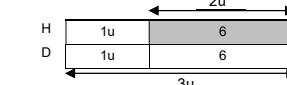
Let's Practise 1.4

Question 1

At first



In the end



$$2u = 6$$

$$1u = 6 \div 2$$

$$= 3$$

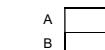
$$3u = 3 \times 3$$

$$= 9$$

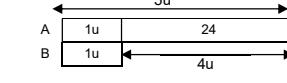
Helen had **9 soft toys** at first.

Question 2

At first



In the end



Answers to Unit 1.4 – More than / Less than

Question 2 (Cont.)

$$4u = 24$$

$$1u = 24 \div 4$$

$$= 6$$

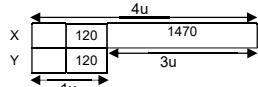
Ben took **6 photos**.

Question 3

At first



In the end



$$3u = 1590 - 120$$

$$= 1470$$

$$1u = 1470 \div 3$$

$$= 490$$

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

$$= 370$$

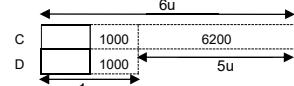
There were **370 trees** in Orchard X at first.

Question 4

In the end



At first



$$5u = 7200 - 1000$$

$$= 6200$$

$$1u = 6200 \div 5$$

$$= 1240$$

$$6u = 6 \times 1240$$

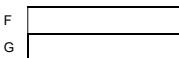
$$= 7440$$

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

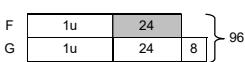
Answers to Unit 1.4 – More than / Less than

Question 5

In the end



At first



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

$$= 64$$

$$1u = 64 \div 3$$

$$= 32$$

Fred had 32 eggs at first.

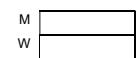
$$1u + 24 + 8 = 32 + 24 + 8$$

$$= 64$$

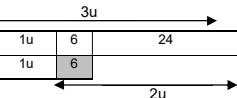
Geneve has **64 eggs** at first.

Question 6

In the end



At first



$$2u = 30$$

$$1u = 30 \div 2$$

$$= 15$$

There were 15 women at the park at first.

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

$$= 21$$

$$21 + 21 = 42$$

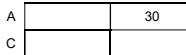
There was a total of **42 men and women** in the park in the end.

Answers to Unit 1.5 – Internal Transfer

Let's Get Started 1,5

2.

At first

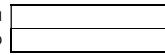


In the end

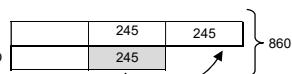


3.

In the end

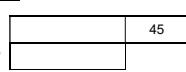


At first

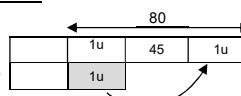


4.

At first

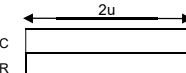


In the end

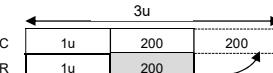


5.

In the end



At first



Answers to Unit 1.5 – Internal Transfer

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.

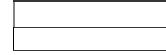
Think Further

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

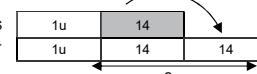
Let's Practise 1,5

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



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

$$= 5680$$

$$1u = 5680 \div 8$$

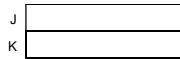
$$= 710$$

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

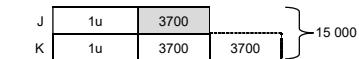
Answers to Unit 1.5 – Internal Transfer

Question 3

In the end



At first



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

$$= 7600$$

$$1u = 7600 \div 2$$

$$= 3800$$

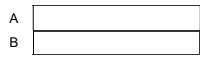
$$1u + 7400 = 3800 + 7400$$

$$= 11\,200$$

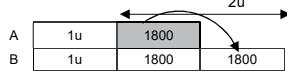
Kaitlin had **\$11 200** at first.

Question 4

Morning



Evening



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

$$= 1800$$

$$2u = 3600$$

$$1u = 3600 \div 2$$

$$= 1800$$

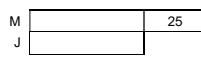
There were 1800 towels in Factory A in the evening.

$$1800 + 1800 = 3600$$

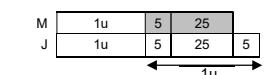
Each factory had **3600 towels** in the morning.

Question 5

At first



In the end



Answers to Unit 1.5 – Internal Transfer

Question 5 (Cont.)

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

$$= 30$$

$$1u = 35$$

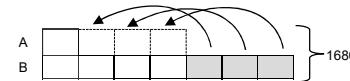
Melvin had 35 cookies in the end.

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

$$= 40$$

Johnny had **40 cookies** at first.

Question 6



$$8u = 1680$$

$$1u = 1680 \div 8$$

$$= 210$$

$$3u = 3 \times 210$$

$$= 630$$

630 decks of 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

Answers to Unit 1.6 – One Item Unchanged

Ask Yourself

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

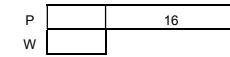
Think Further

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

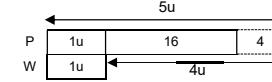
Let's Practise 1.6

Question 1

At first



In the end



$$4u = 16 + 4$$

$$= 20$$

$$1u = 20 \div 4$$

$$= 5$$

Wayne had 5 shirts in the end.

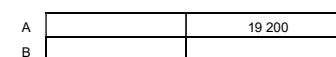
$$5u = 5 \times 5$$

$$= 25$$

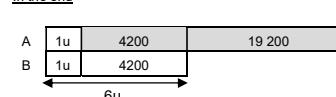
Paul had **25 shirts** in the end.

Question 2

At first



In the end



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

$$= 4200$$

$$1u = 4200 \div 5$$

$$= 840$$

Answers to Unit 1.6 – One Item Unchanged

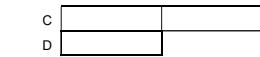
Question 2 (Cont.)

$$\begin{aligned} 1u + 23\,400 &= 840 + 23\,400 \\ &= 24\,240 \end{aligned}$$

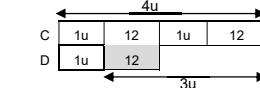
There were **24 240 ants** in Farm A at first.

Question 3

At first



In the end



$$2u = 12 + 12$$

$$= 24$$

$$1u = 24 \div 2$$

$$= 12$$

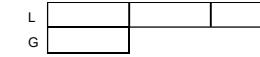
Denise had 12 hair clips in the end.

$$12 + 12 = 24$$

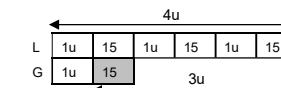
Denise had **24 hair clips** at first.

Question 4

At first



In the end



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

$$= 45$$

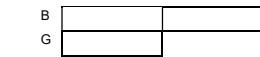
Gillian had 45 pens in the end.

$$45 + 15 = 60$$

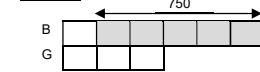
Gillian had **60 pens** at first.

Question 5

At first



In the end



Answers to Unit 1.6 – One Item Unchanged

Question 5 (Cont.)

$$\begin{aligned} 5u &= 750 \\ 1u &= 750 \div 5 \\ &= 150 \end{aligned}$$

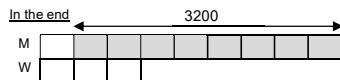
There were 150 boys at the science fair in the end.

$$\begin{aligned} 9u &= 9 \times 150 \\ &= 1350 \end{aligned}$$

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

Question 6

At first



$$8u = 3200$$

$$\begin{aligned} 1u &= 3200 \div 8 \\ &= 400 \end{aligned}$$

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

$$\begin{aligned} 2u &= 2 \times 400 \\ &= 400 \end{aligned}$$

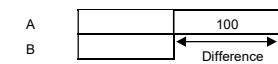
There were **800 more** women than men at the convention in the end.

Answers to Unit 1.7 – Difference Unchanged

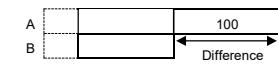
Let's Get Started 1.7

2.

At first



In the end



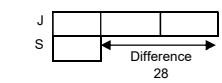
Answers to Unit 1.7 – Difference Unchanged

3.

Now

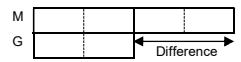


Future

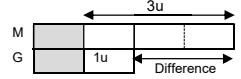


4.

At first



After

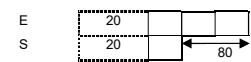


5.

At first



In the end



Ask Yourself

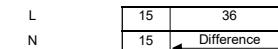
- It is a Difference Unchanged problem because the difference in their age never changes.
- The age of Aunt Lisa and the age of her nephew change as time passes.

Think further

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

Answers to Unit 1.7 – Difference Unchanged

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.

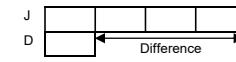
Let's Practise 1.7

Question 1

Present

$$\begin{array}{l} \text{Jamie } = 50 \text{ years old} \\ \text{Daughter } = 29 \text{ years old} \\ \text{Difference } = 21 \text{ years old} \end{array}$$

Past



$$3u = 21$$

$$\begin{aligned} 1u &= 21 \div 3 \\ &= 7 \end{aligned}$$

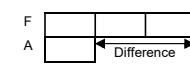
$$29 - 7 = 22$$

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



$$2u = 12$$

$$\begin{aligned} 1u &= 12 \div 2 \\ &= 6 \end{aligned}$$

$$\begin{array}{l} \text{Mrs Fong } = 3 \times 6 \\ = 18 \end{array}$$

7 years' time (future)

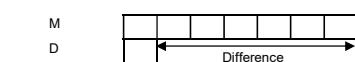
$$18 + 7 = 25$$

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

Answers to Unit 1.7 – Difference Unchanged

Question 3

Present



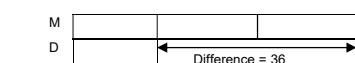
(a) Total age now = 8u

$$\begin{aligned} 8u &= 64 - 16 \\ &= 48 \end{aligned}$$

$$\begin{aligned} 1u &= 48 \div 8 \\ &= 6 \\ 6u &= 6 \times 6 \\ &= 36 \end{aligned}$$

Their age difference at present is 36 years.

Some years later



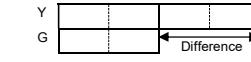
$$2u = 36$$

$$\begin{aligned} 1u &= 36 \div 2 \\ &= 18 \end{aligned}$$

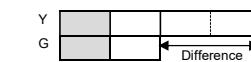
Dan will be **18 years old**, when Mike is 3 times as old as him.

Question 4

At first



In the end



$$\begin{array}{l} \text{Decrease } = 4u - 3u \\ = 1u \\ 1u = 16 \end{array}$$

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

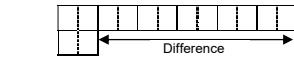
$$4u = 4 \times 16$$

$$\begin{aligned} &= 64 \\ \text{There were } 64 \text{ chairs} &\text{ altogether in the hall in the end.} \end{aligned}$$

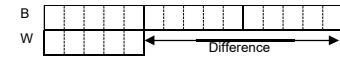
Answers to Unit 1.7 – Difference Unchanged

Question 5

At first



End



$$5u = 20$$

$$1u = 20 \div 5$$

$$= 4$$

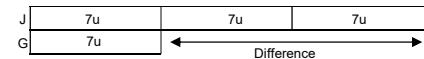
$$\text{Total balloons and whistles bought} = 3u + 3u \\ = 6u$$

$$6u = 6 \times 4 \\ = 24$$

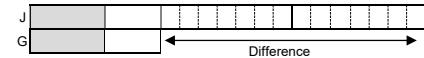
She bought **24 balloons and whistles** in all.

Question 6

At first



End



$$\text{Joni Spent} = 21u - 16u \\ = 5u$$

$$5u = 45$$

$$1u = 45 \div 5$$

$$= 9$$

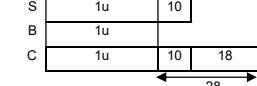
$$18u = 18 \times 9 \\ = 162$$

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

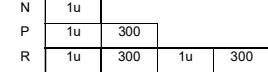
Answers to Unit 1.8 – Repeated Items

Let's Get Started 1.8

2.



3.

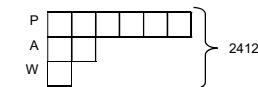


Answers to Unit 1.8 – Repeated Items

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



$$\text{Total} = 6u + 2u + 1u \\ = 9u$$

$$9u = 2412$$

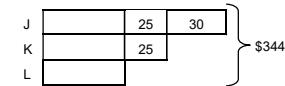
$$1u = 2412 \div 9 \\ = 268$$

$$6u = 6 \times 268 \\ = 1608$$

There were **1608 pineapples**.

Let's Practise 1.8

Question 1



$$25 + 25 + 30 = 80$$

$$3u = 344 - 80$$

$$= 264$$

$$1u = \$264 \div 3$$

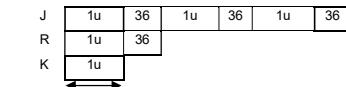
$$= 88$$

Leonard had **\$88**.

$$88 + 25 + 30 = 143$$

Jason has **\$143**.

Question 2



$$1u = 40$$

$$5u = 5 \times 40$$

$$= 200$$

$$4 \times 36 = 144$$

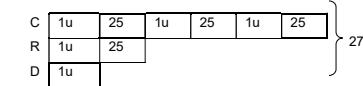
Answers to Unit 1.8 – Repeated Items

Question 2 (Cont.)

$$5u + 144 = 200 + 144 \\ = 344$$

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

Question 3



$$25 \times 4 = 100$$

$$5u = 275 - 100$$

$$= 175$$

$$1 \text{ unit} = 175 \div 5$$

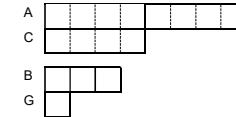
$$= 35$$

There were **35 stalks** of daisies.

$$C + D = 4u + 75 \\ = 4 \times 35 + 75 \\ = 215$$

There were **215 stalks** of carnations and daisies.

Question 4



Difference between boys and girls = $3u - 1u$

$$= 2u$$

$$2u = 2300$$

$$1u = 2300 \div 2$$

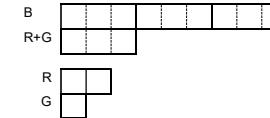
$$= 1150$$

$$8u = 8 \times 1150$$

$$= 9200$$

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

Question 5



Difference between red and grey = $2u - 1u$

$$= 1u$$

$$1u = 10$$

Difference between black and red = $9u - 2u$

$$= 7u$$

Answers to Unit 1.8 – Repeated Items

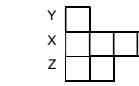
Question 5 (Cont.)

$$7u = 7 \times 10$$

$$= 70$$

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

Question 6



Difference between Z and Y = $2u - 1u$

$$= 1u$$

$$1u = 42$$

$$2u = 2 \times 42$$

$$= 84$$

$$4u = 4 \times 42$$

$$= 168$$

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

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.

Answers to Unit 1.9 – Quantity x Value

Think Further

1. Farmer Sally sold a total of 150 pineapples and peaches. Each pineapple was sold at \$3 and each peach 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 Practise 1.9

Question 1

Items	Quantity of Items	\times	Value of each unit (Wheels)	Total Value (Wheels)
B	2u	\times	2	4u
G	1u	\times	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	\times	Value of each unit (\$)	Total Value (\$)
C	2u	\times	1	2u
D	1u	\times	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	\times	Value of each unit (candy)	Total Value (candy)
G	1u	\times	2	2u
B	3u	\times	1	3u
Total	4u			5u

$$5u = 150$$

$$1u = 150 \div 5$$

$$= 30$$

There were 30 girls.

$$2u = 2 \times 30$$

$$= 60$$

Answers to Unit 1.9 – Quantity x Value

Question 3 (Cont.)

There were 60 more boys than girls at the party.

Question 4

Items	Quantity of Items	\times	Value of each unit (Treats)	Total Value (Treats)
G	3u	\times	3	9u
S	1u	\times	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	\times	Value of each unit (chicken wings)	Total Value (chicken wings)
Girls	3u	\times	4	12u
Boys	1u	\times	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 barbecue.

Question 6

Items	Quantity of Items	\times	Value of each unit strawberry	Total Value (strawberry)
Adults	12	\times	3u	36u
Children	30	\times	1u	30u
Total	42			66u

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

$$6u = 42$$

$$1u = 42 \div 6$$

$$= 7$$

Strawberry picked = 66u

$$66u = 66 \times 7$$

$$= 462$$

Answers to Unit 1.9 – Quantity x Value

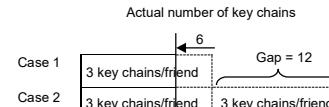
Question 6 (Cont.)

They picked 462 strawberries together.

Answers to Unit 1.10 – Gap & Difference

Let's Get Started 1.10

3.



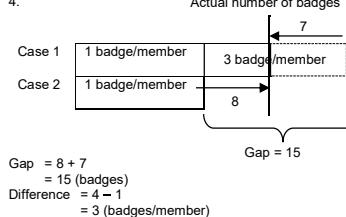
$$\text{Gap} = 18 - 6$$

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

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

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

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.

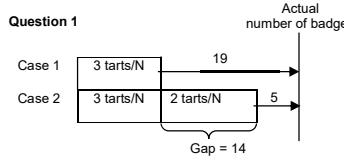
2.

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



$$\text{Gap} = 8 - 2$$

$$= 6$$

- Difference between Case 1 and Case 2 = 11 - 8
- 6 ÷ 3 = 2

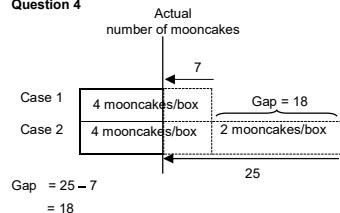
Shawn has 2 friends.

- Number of pens:

$$\text{Using Case 1: } 2 \times 8 - 2 = 14$$

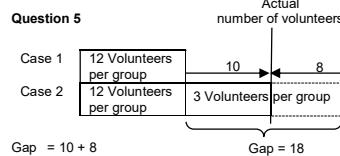
$$\text{Using Case 2: } 2 \times 11 - 8 = 14 \text{ (Checked)}$$

Shawn has 14 pens.

Answers to Unit 1.10 – Gap & Difference
Question 4


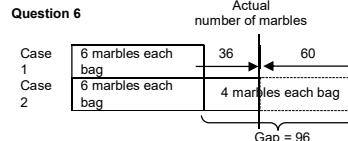
(a) $18 + 2 = 9$
There were **9 workers**.

(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


(a) $18 + 3 = 6$
There were **6 groups** of volunteers.

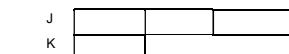
(b) Number of volunteers:
Using Case 1 : $12 \times 6 + 10 = 82$
Using Case 2 : $15 \times 6 - 8 = 82$ (Checked)
There were **82 volunteers** at the event.

Question 6


Difference = 128 - 106
= 22

Answers to Unit 1.10 – Gap & Difference
Question 6 (Cont.)

- (a) Number of marbles : $96 + 4 = 24$
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.



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

Answers to Unit 1.11 – Guess and Check
Let's Get Started 1.11

1. Quantity \times Value
2. Guess-and-Check
3. Guess-and-Check
4. Guess-and-Check
5. Quantity \times Value

Let's Learn 1.11
Ask Yourself

1. Total quantity, total value, value of items
2. Guess-and-Check

Think Further

1. Use Quantity \times Value to solve the question

Items	Quantity	\times	Value (legs)	Total value (legs)
Chicken	2u	x	2	4u
Cow	1u	x	4	4u
Total	3u			8u

$$8u = 64 \\ 1u = 64 \div 8 \\ = 8 \\ 2u = 2 \times 8 \\ = 16$$

There are **16 chickens** on the farm.

Let's Practise 1.11
Question 1

No. of hamsters	No. of hamsters' legs	No. of birds	No. of birds' legs	Total no. of legs	Check
32	$32 \times 4 = 128$	0	0	128	x
31	$31 \times 4 = 124$	1	$1 \times 2 = 2$	$124 + 2 = 126$	x
32 - 11 = 21	$32 \times 4 = 84$	11	$11 \times 2 = 22$	$84 + 22 = 106$	v

$$\text{Difference} = 128 - 106 \\ = 22$$

Answers to Unit 1.11 – Guess and Check
Question 1 (Cont.)

- Gap = 128 - 126
= 2
No. of birds = $22 + 2$
= 11

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

Question 2

No. of white marbles	Total cost of white marbles	No. of black marbles	Total cost of black marbles	Total cost of all marbles	Check
40	$40 \times 0.5 = 20$	0	0	20	x
39	$39 \times 0.5 = 19.5$	1	$1 \times 0.2 = 0.2$	$19.5 + 0.2 = 19.7$	x
$40 - 18 = 22$	$22 \times 0.5 = 11$	18	$18 \times 0.2 = 3.6$	$11 + 3.6 = 14.6$	v

$$\text{Difference} = 20 - 14.6$$

$$= 5.4$$

$$\text{Gap} = 20 - 19.7$$

$$= 0.3$$

$$\text{No. of birds} = 5.4 \div 0.3$$

$$= 54 \div 3$$

$$= 18$$

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

Question 3

No. of motor-cycles	No. of motor-cycles wheels	No. of cars	No. of car's wheels	Total no. of wheels	Check
54	$54 \times 2 = 108$	0	0	108	x
53	$53 \times 2 = 106$	1	$1 \times 4 = 4$	$106 + 4 = 110$	x
$54 - 29 = 25$	$25 \times 2 = 50$	29	$29 \times 4 = 116$	$50 + 116 = 166$	v

$$\text{Difference} = 166 - 108$$

$$= 58$$

$$\text{Gap} = 110 - 108$$

$$= 2$$

$$\text{No. of cars} = 58 \div 2$$

$$= 29$$

There are **29 cars**.

Question 4

No. of bottles of water	Total cost of bottles of water	No. of bottles of fruit juice	Total cost of bottles of fruit juice	Total amount collected	Check
30	$30 \times 1 = 30$	0	0	30	x
29	$29 \times 1 = 29$	1	$1 \times 2 = 2$	$29 + 2 = 31$	x
$30 - 8 = 22$	$22 \times 1 = 22$	8	$8 \times 2 = 16$	$22 + 16 = 38$	v

$$\text{Difference} = 38 - 30$$

$$= 8$$

Answers to Unit 1.11 – Guess and Check
Question 4 (Cont.)

- Gap = $31 - 30$
= 1
No. of bottles of fruit juice in one day = $8 \div 1$
= 8
No. of bottles of fruit juice sold in one week = 7×8
= 56

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

Question 5

No. of shirts without defect	Amount earned	No. of shirts with defect	Amount earned	Total amount reduced	Check
20	$20 \times 10 = 200$	0	0	200	x
19	$19 \times 10 = 190$	1	$1 \times 2 = 2$	$190 - 2 = 188$	x
$20 - 3 = 17$	$17 \times 10 = 170$	3	$3 \times 2 = 6$	$170 - 6 = 164$	v

$$\text{Difference} = 200 - 164$$

$$= 36$$

$$\text{Gap} = 200 - 188$$

$$= 12$$

$$\text{No. of shirts with defects} = 36 \div 12$$

$$= 3$$

3 shirts had a defect on that particular week.

Question 6

No. of correct answers	Point received	No. of incorrect answers	Points deducted	Total points awarded	Check
45	$45 \times 2 = 90$	0	0	90	x
44	$44 \times 2 = 88$	1	$1 \times 1 = 1$	$88 - 1 = 87$	x
39	$39 \times 2 = 78$	6	$6 \times 1 = 6$	$78 - 6 = 72$	v

$$\text{Difference} = 90 - 72$$

$$= 18$$

$$\text{Gap} = 90 - 87$$

$$= 3$$

$$\text{No. of incorrect answers} = 18 \div 3$$

$$= 6$$

$$\text{No. of correct answers} = 45 - 6$$

$$= 39$$

He answered **39 questions** correctly.

Answers to Review Questions on Chapter 1
Question 1

C	1u		2160
A	1u	652	

$$2u = 2160 - 652$$

$$= 1508$$

Answers to Review Questions on Chapter 1

Question 1 (Cont.)

$$1u = 1508 \div 2 \\ = 754$$

754 children attended the Gala Premier.

$$754 + 652 = 1406$$

1406 adults attended the Gala Premier.

Question 2

At first

J	[]
M	[]
K	[]

In the end

J	1u	[]
M	1u	1u
K	1u	1u

$$5u = 40 - 5$$

$$= 35$$

$$1u = 35 \div 5$$

$$= 7$$

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

W	[]
M	[]

At first

W	1u	4	12
M	1u	4	2u

$$2u = 16$$

$$1u = 16 \div 2$$

$$= 8$$

There were **8 men** at first.

$$3u = 3 \times 8$$

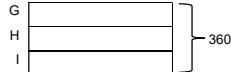
$$= 24$$

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

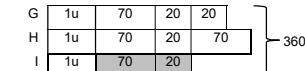
Answers to Review Questions on Chapter 1

Question 4

In the end



At first



$$(a) 3u = 360$$

$$1u = 360 \div 3 \\ = 120$$

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

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

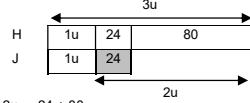
Ian had **30 cards** at first.

Question 5

At first

H	[]	80
J	[]	

In the end



$$2u = 24 + 80$$

$$= 104$$

$$1u = 104 \div 2$$

$$= 52$$

Johan had 52 marbles in the end.

$$52 + 24 = 76$$

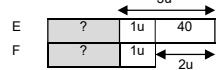
Johan had **76 marbles** at first.

Question 6

At first

E	80	40
F	80	

In the end



Answers to Review Questions on Chapter 1

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

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

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

$$3u = 369 - 72$$

$$= 297$$

$$1u = 297 \div 3$$

$$= 99$$

Maddie collected **99 seashells**.

$$(b) 99 + 16 = 115$$

Louisa collected **115 seashells**.

Question 8

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

$$10u = 124 - 24$$

$$= 100$$

$$1u = 100 \div 10$$

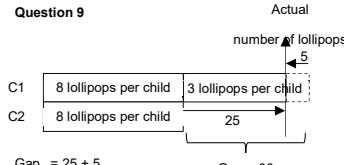
$$= 10$$

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

$$= 3 \text{ lollipops per child}$$

$$(a) 30 \div 3 = 10$$

There were **10 children** altogether.

Answers to Review Questions on Chapter 1

Question 9 (Cont.)

(b) Number of lollipops:

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

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

There were **105 lollipops**.

Question 10

At first

X	880	370
Y	880	

In the end

X	880	1u	100	1u
Y	880	1u		

$$2u = 370 - 100$$

$$= 270$$

$$1u = 270 \div 2$$

$$= 135$$

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

Question 11

At first

N	[]	76
V	[]	

In the end

N	1u	12	76
V	1u	12	

$$2u = 12 + 76$$

$$= 88$$

$$1u = 88 \div 2$$

$$= 44$$

Veronica had 44 stalks of roses in the end.

$$44 + 88 = 132$$

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

Answers to Review Questions on Chapter 1

Question 12

Difference between Emma's age and Fatima's age

$$= 29 - 17$$

$$= 12$$

Now

F	17	12
E	17	Difference

? years ago (Past)

F	12	12
E	12	Difference

$$1u = 12$$

$$17 - 12 = 5$$

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

Question 13

D	1u	1u	1u
S	1u		

$$\text{Total} = 3u + 3u + 3u + 1u$$

$$= 10u$$

$$10u = 200$$

$$1u = 200 \div 10$$

$$= 20$$

$$6u = 6 \times 20$$

$$= 120$$

2 such dresses cost **\$120**.

Question 14

M	1u	1u	1u	1u
D	1u			
T	1u	998		

$$6u = 2432 - 998$$

$$= 1434$$

$$1u = 1434 \div 6$$

$$= 239$$

$$4u = 4 \times 239$$

$$= 956$$

The mobile phone cost **\$956**.

Question 15

Multiples of 7: 7, 14, 21, 28, 35, 42, 49, ...

(add 6 extra) : 13, 20, 27, 34, 41, 48, ...

Multiples of 8: 8, 16, 24, 32, 40, 48

(add 2 extra): 10, 18, 26, 34, 42, ...

Jeremy has **34 lollipops**.

Answers to Review Questions on Chapter 1

Question 16

In the end

M	1u	1u
B	1u	

At first

M	1u	1u	247
B	1u		

$$3u = 2350 - 247$$

$$= 2103$$

$$1u = 2103 \div 3$$

$$= 701$$

$$2u = 2103 - 701$$

$$= 1402$$

$$\text{Magnets (at first)} = 1402 + 247$$

$$= 1649$$

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

Question 17

In the end

A	1u	1u	1u
C	1u		

$$4u = 54 + 12 - 18$$

$$= 48$$

$$1u = 48 \div 4$$

$$= 12$$

$$1u + 18 = 12 + 18$$

$$= 30$$

30 children boarded the bus at the interchange.

Question 18

$$4T + 5S = 56$$

$$2T + 3S = 30$$

$$4T + 6S = 2 \times 30$$

$$= 60$$

$$1S = 60 - 56$$

$$= 4$$

$$10S = 10 \times 4$$

$$= 40$$

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

Answers to Review Questions on Chapter 1

Question 19

$$6u = 3678$$

$$1u = 3678 \div 6$$

$$= 613$$

Shiro (at first) = $613 - 34$

$$= 579$$

Shiro had **\$579** at first.

Question 20

No. of adult tickets	Total cost of adult tickets	No. of child tickets	Total cost of child tickets	Total cost	Check
35	$35 \times 12 = 420$	0	0	420	x
34	$34 \times 12 = 408$	1	$1 \times 5 = 5$	$408 + 5 = 413$	x
35 - 15 = 20	$20 \times 12 = 240$	15	$15 \times 5 = 75$	$240 + 75 = 315$	✓

$$\text{Difference} = 420 - 315$$

$$= 105$$

$$\text{Gap} = 420 - 413$$

$$= 7$$

$$\text{No. of child tickets} = 105 \div 7$$

$$= 15$$

Alison bought **15 child tickets**.

Answers to Unit 2.1 – Fractions Basics

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

$$\begin{aligned} 4. \quad \frac{2}{3} &= \frac{14}{21} & \frac{2}{7} &= \frac{6}{21} \\ \text{Total painted} &= \frac{14}{21} + \frac{6}{21} & = \frac{20}{21} \\ &= \frac{1}{21} & \text{Poles unpainted} &= \frac{21}{21} - \frac{20}{21} \\ &= \frac{1}{21} & &= \frac{1}{21} \\ 1u &= 57 \text{ cm} & 21u &= 1197 \text{ cm} \end{aligned}$$

Think Further

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

Let's Practise 2.1

Question 1

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

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

$$7u = 56$$

$$1u = 56 \div 7$$

$$= 8$$

$$15u = 8 \times 15$$

$$= 120$$

120 cookies were given to her neighbours.

Question 2

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

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

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

$$\begin{aligned} 3. \quad \frac{1}{3} &= \frac{7}{21} & \frac{1}{7} &= \frac{3}{21} \\ \text{Bryan painted} &= \frac{7}{21} + \frac{3}{21} & & \\ &= \frac{10}{21} & & \end{aligned}$$

Answers to Unit 2.1 – Fractions Basics

Question 2 (Cont.)

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

$$7u = 84$$

$$1u = 84 \div 7$$

$$= 12$$

$$2u = 2 \times 12$$

$$= 24$$

24 stamps are from America.

Question 3

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

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

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

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

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

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

$$= 100$$

$$3u \text{ of the people} = 3 \times 100$$

$$= 300$$

There were 300 organisers.

$$(b) 4u \text{ of the people} = 300$$

$$1u \text{ of the people} = 300 \div 4$$

$$= 75$$

75 of the organising members were female.

Question 4

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

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

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

$$= \frac{1}{40}$$

$$1u \text{ of the lemonade} = 80$$

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

$$= 3200$$

Mrs Jones made 3200 mℓ of lemonade.

Answers to Unit 2.1 – Fractions Basics

Question 5

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

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

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

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

$$1u \text{ of fabric} = 22 \div 11$$

$$= 2$$

$$12u \text{ of fabric} = 12 \times 2$$

$$= 24$$

Selina bought 24 m of fabric.

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

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

$$= 6$$

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

Question 6

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

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

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

$$= \frac{7}{10}$$

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

$$= \frac{3}{10}$$

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

$$1u \text{ of the total} = 270 \div 3$$

$$= 90$$

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

$$= 900$$

There were 900 muffins.

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

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

$$= 150$$

There were 150 muffins left.

Answers to Unit 2.2 – Numerators the Same

Let's Get Started 2.2

3.

Model-drawing approach

C



D



Unitary approach

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

4.

Unitary approach

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

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.

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

Difference = $10u - 9u$

$$= 1u$$

$$1u = 15$$

$$19u = 19 \times 15$$

$$= 285$$

There were 285 children altogether.

Let's Practise 2.2

Question 1

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

$$10u = 60$$

$$1u = 60 \div 10$$

$$= 6$$

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Page 23

Answers to Unit 2.2 – Numerators the Same

Question 1 (Cont.)

$$(a) 6u = 6 \times 6$$

$$= 36$$

There are 36 storybooks.

$$(b) 2u = 2 \times 6$$

$$= 12$$

There are 12 more storybooks than comic books.

Question 2

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

$$9u = 45$$

$$1u = 45 \div 9$$

$$= 5$$

$$6u = 6 \times 5$$

$$= 30$$

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

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

$$13u = 130$$

$$1u = 130 \div 13$$

$$= 10$$

$$3u = 3 \times 10$$

$$= 30$$

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

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

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

Answers to Unit 2.2 – Numerators the Same

Question 4 (Cont.)

Total Sold

$$\begin{aligned} C &= 16u & C &= 16u - 10u \\ &&&= 6u \\ D &= 25u & D &= 25u - 10u \\ &&&= 15u \\ \text{Difference} &= 15u - 6u \\ &&&= 9u \\ 9u &= 36 \\ 1u &= 36 \div 9 \\ &= 4 \\ \text{Total sold} &= 6u + 15u \\ &&= 21u \\ 21u &= 21 \times 4 \\ &&= 84 \\ \text{Mr Lim sold } &\text{84 ducks and chickens.} \end{aligned}$$

Question 5

$$\begin{aligned} \frac{1}{5}J &= \frac{3}{4}K & K &= \frac{2}{5}L \\ \frac{6}{30}J &= \frac{6}{8}K & K &= \frac{6}{15}L \\ \left. \begin{array}{l} \text{Total } J = 30u \\ \text{Total } K = 8u \\ \text{Total } L = 15u \\ \text{Total} = 30u + 8u + 15u \\ = 53u \end{array} \right\} \end{aligned}$$

Difference = $15u - 8u$
= 7u

7u = 7

1u = 1

53u = 53

The boys received \$53 from their uncle.

Question 6

$$\begin{aligned} \frac{3}{4}L &= \frac{3}{7}E & E &= \frac{4}{5}G \\ \frac{12}{16}L &= \frac{12}{28}E & E &= \frac{12}{15}G \\ \left. \begin{array}{l} \text{Total } L = 16u \\ \text{Total } E = 28u \\ \text{Total } G = 15u \\ \text{Difference} = 28u - 16u \\ = 12u \end{array} \right\} \end{aligned}$$

12u = 24

1u = $24 \div 12$

= 2

16u = 16×2
= 32 (Lucia)

28u = 28×2
= 56 (Eliza)

15u = 15×2
= 30 (Grace)

Lucia, Eliza and Grace collected 32, 56 and 30 leaves respectively.

Answers to Unit 2.3 – Repeated Items

Let's Get Started 2.3

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

Ask Yourself

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

Think Further

1.

$$\begin{aligned} \text{Case 1} \\ S &= 2u^2(6u) \\ C &= 5u^3(15u) \\ \text{Case 2} \\ C &= 3u^5(15u) \\ J &= 4u^5(20u) \\ \left. \begin{array}{l} \text{Summary} \\ S = 6u \\ C = 15u \\ J = 20u \\ \text{Total} = 6u + 15u + 20u \\ = 41u \end{array} \right\} \end{aligned}$$

20u = 40

1u = $40 \div 20$

= 2

Number of files Charmaine bought more than Sylvia

= $15u - 6u$

= 9u

9u = 9×2

= 18

Charmaine bought 18 more files than Sylvia.

Answers to Unit 2.3 – Repeated Items

Let's Practise 2.3

Question 1

$$\left. \begin{array}{l} \text{Case 1} \\ A = 1u \\ P = 3u \\ \text{Case 2} \\ A = 1u \\ O = 2u \\ \left. \begin{array}{l} \text{Summary} \\ A = 1u \\ P = 3u \\ O = 2u \\ \text{Total} = 1u + 2u + 3u \\ = 6u \end{array} \right\} \end{array} \right.$$

6u = 60

1u = $60 \div 6$

= 10

3u = 3×10

= 30

There are 30 pears.

Question 2

Case 1

$$\left. \begin{array}{l} M = 2u \\ L = 3u \\ \text{Case 2} \\ M = 1u^2(2u) \\ N = 3u^2(6u) \\ \left. \begin{array}{l} \text{Summary} \\ M = 2u \\ L = 3u \\ N = 6u \\ \text{Total} = 2u + 3u + 6u \\ = 11u \end{array} \right\} \end{array} \right.$$

Difference between Nathaniel and Michael

= $6u - 2u$

= 4u

4u = 44

1u = $44 \div 4$

= 11

11u = 11×11

= 121

They have a total of 121 cards.

Question 3

Case 1

$$\left. \begin{array}{l} P = 3u^2(6u) \\ S = 5u^2(10u) \\ \text{Case 2} \\ S = 2u^5(10u) \\ T = 3u^5(15u) \\ \left. \begin{array}{l} \text{Summary} \\ P = 6u \\ S = 10u \\ T = 15u \\ \text{Total} = 6u + 10u + 15u \\ = 31u \end{array} \right\} \end{array} \right.$$

Difference between Tess and Patrick = $15u - 6u$

= 9u

9u = 63

1u = $63 \div 9$

= 7

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Page 25

Answers to Unit 2.3 – Repeated Items

Question 3 (Cont.)

$$31u = 31 \times 7$$

= 217

The children were given 217 sweets.

Question 4

Case 1

$$\left. \begin{array}{l} \text{Red} = 4u^3(12u) \\ \text{Yellow} = 7u^3(21u) \\ \left. \begin{array}{l} \text{Summary} \\ R = 12u \\ Y = 21u \\ \text{Total} = 12u + 21u + 20u \\ = 53u \end{array} \right\} \end{array} \right.$$

53u = 106

1u = $106 \div 53$

= 2

21u = 21×2

= 42

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

Question 5

Case 1

$$\left. \begin{array}{l} C = 2u^5(10u) \\ M = 3u^5(15u) \\ \left. \begin{array}{l} \text{Summary} \\ C = 10u \\ M = 15u \\ I = 8u \\ \text{Total} = 10u + 15u + 8u \\ = 33u \end{array} \right\} \end{array} \right.$$

Malay and Indian = $15u + 8u$

= 23u

Difference between Chinese students and the Malay and Indian students combined = $23u - 10u$
= 13u

13u = 104

1u = $104 \div 13$

= 8

33u = 33×8

= 264

A total of 264 students enrolled in the school.

Question 6

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

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

Answers to Unit 2.3 – Repeated Items

Question 6 (Cont.)

Case 1
 $M = 3u^x(12u)$

$K = 8u^x(32u)$

Summary

$M = 12u$

Case 2
 $M = 4u^x(12u)$

$L = 7u^x(21u)$

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

= $65u$

$$\begin{aligned} \text{Kelvin and Marvin} &= 12u + 32u \\ &= 44u \end{aligned}$$

Difference of Kelvin and Marvin with Lionel

$$= 44u - 21u$$

$$= 23u$$

$$23u = 115$$

$$1u = 115 \div 23$$

$$= 5$$

$$21u = 21 \times 5$$

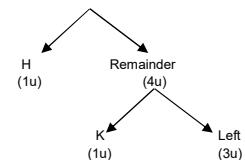
$$= 105$$

Lionel has **105 bullets**.

Answers to Unit 2.4 – Branching

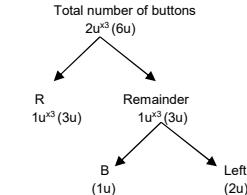
Let's Get Started 2.4

1. Total number of marbles
 $(5u)$



Answers to Unit 2.4 – Branching

3.

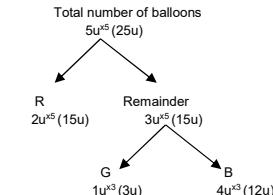


Ask Yourself

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

Think Further

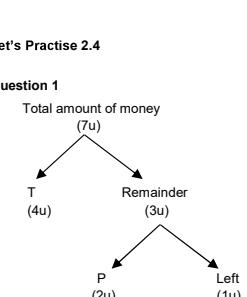
1.



Let's Practise 2.4

Question 1

Total amount of money
 $(7u)$



Question 1

Total amount of money
 $(7u)$

$T = 4u$

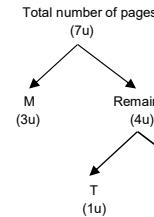
$7u = 7 \times 4$

= 35

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

Answers to Unit 2.4 – Branching

Question 2



$$\text{Difference} = 3u - 1u$$

$$= 2u$$

$$2u = 60$$

$$1u = 60 \div 2$$

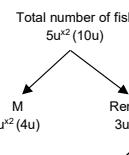
$$= 30$$

$$7u = 7 \times 30$$

$$= 210$$

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

Question 3



$$5u = 25$$

$$1u = 25 \div 5$$

$$= 5$$

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

$$= 3u$$

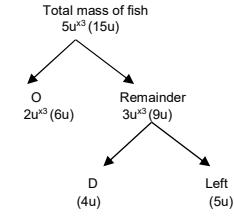
$$3u = 3 \times 5$$

$$= 15$$

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

Answers to Unit 2.4 – Branching

Question 4



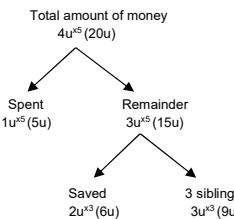
$$15u = 600$$

$$5u = 600 \div 3$$

$$= 200$$

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

Question 5



$$20u = 240$$

$$1u = 240 \div 20$$

$$= 12$$

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

$$1 \text{ sibling} = 9u \div 3$$

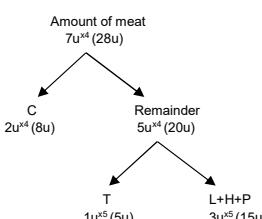
$$= 3u$$

$$3u = 3 \times 12$$

$$= 36$$

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

Question 6



Visit the forum page at www.onspunge.com for more challenging problem sums.

Page 27

Answers to Unit 2.4 – Branching

Question 6 (Cont.)

$$P = 15u + 3$$

$$= 5u$$

$$5u = 30$$

$$1u = 30 \div 5$$

$$= 6$$

$$28u = 28 \times 6$$

$$= 168$$

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

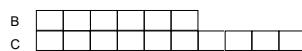
Answers to Unit 2.5 – One Item Unchanged

Let's Get Started 2.5

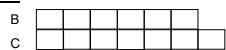
2. What did not change? **The number of buns.**

Model-drawing approach

At first



End



Answers to Unit 2.5 – One Item Unchanged

Unitary approach

At first

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

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

End

$$B = 6u$$

$$C = 7u$$

$$\text{Change in the number of cakes} = 10u - 7u$$

$$= 3u$$

$$3u = 12$$

$$1u = 12 \div 3$$

$$= 4$$

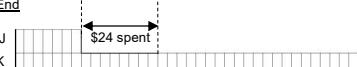
3. What did not change? **The amount of money Keith has.**

Model-drawing approach

At first



End



Answers to Unit 2.5 – One Item Unchanged

Unitary approach

At first

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

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

End

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

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

$$8u = 24$$

$$1u = 24 \div 8$$

$$= 3$$

Ask Yourself

$$1.$$

$$\frac{\text{Increase in number of wine glasses}}{\text{Number of wine glasses at first}} = \frac{12}{3}$$

$$= 4$$

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

Answers to Unit 2.5 – One Item Unchanged

Let's Practise 2.5

Question 1

At first

$$D = 2u$$

$$C = 1u$$

End

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

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

$$\text{Changes in } C = 12u - 1u$$

$$= 11u$$

$$11u = 22$$

$$1u = 22 \div 11$$

$$= 2$$

$$\text{Total in the end} = 12u + 2u$$

$$= 14u$$

$$14u = 14 \times 2$$

$$= 28$$

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

Question 2

At first

$$M = 4u$$

$$F = 5u$$

End

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

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

Answers to Unit 2.5 – One Item Unchanged

Question 2 (Cont.)

$$\text{Difference} = 12u - 5u$$

$$= 7u$$

$$7u = 28$$

$$1u = 28 \div 7$$

$$= 4$$

$$12u = 12 \times 4$$

$$= 48$$

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

Question 3

At first

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

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

End

$$P = 3u^{\times 3} (9u)$$

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

$$\text{Difference} = 14u - 9u$$

$$= 5u$$

$$5u = 25$$

$$1u = 25 \div 5$$

$$= 5$$

$$14u = 14 \times 5$$

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

$$21u = 21 \times 5$$

$$= 105 (\text{M at first})$$

$$70 + 105 = 175$$

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

Question 4

At first

$$A = 1u^{\times 4} (4u)$$

$$C = 3u^{\times 4} (12u)$$

End

$$A = 1u^{\times 3} (3u)$$

$$C = 4u^{\times 3} (12u)$$

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

$$= 1u$$

$$1u = 28$$

$$\text{Difference (end)} = 12u - 3u$$

$$= 9u$$

$$9u = 9 \times 28$$

$$= 252$$

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

Answers to Unit 2.5 – One Item Unchanged

Question 5

At first

$$C = 2u$$

$$R = 3u$$

End

$$C = 1u^{\times 2} (2u)$$

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

$$\text{Difference} = 8u - 3u$$

$$= 5u$$

$$5u = 35$$

$$1u = 35 \div 5$$

$$= 7$$

$$8u = 8 \times 7$$

$$= 56$$

There were **56 stalks** of roses in the basket.

Answers to Unit 2.5 – One Item Unchanged

Question 6

At first

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

$$S = 5u^{\times 5} (25u)$$

End

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

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

$$\text{Change in } S = 25u - 8u$$

$$= 17u$$

$$17u = 51$$

$$1u = 51 \div 17$$

$$= 3$$

$$10u = 10 \times 3$$

$$= 30$$

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

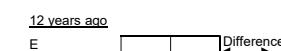
Answers to Unit 2.6 – Difference Unchanged

Let's Get Started 2.6

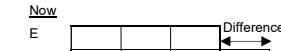
3. What remained the same?
The age difference between Ethan and his mother.

Model-drawing approach

12 years ago



Now



Answers to Unit 2.6 – Difference Unchanged

Unitary approach

12 years ago

$$E = 2u$$

$$M = 3u$$

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

Now

$$E = 3u$$

$$M = 4u$$

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

$$1u = 12$$

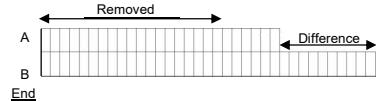
4. What remained the same?

Difference between Basket A and Basket B

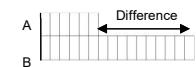
Answers to Unit 2.6 – Difference Unchanged

Model-drawing approach

At First



End



Unitary approach

At first

$$A = 5u^5 \text{ (25u)}$$

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

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

End

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

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

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

$$19u = 95$$

$$1u = 95 \div 19$$

$$= 5$$

Let's Learn 2.6

Ask Yourself

1. 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.

Answers to Unit 2.6 – Difference Unchanged

Think Further

$$J = 2u$$

$$D = 1u$$

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

$$1u = 12$$

$$12 - 3 = 9$$

In 9 years' time, Jonathan will be twice as old as Diana.

Let's Practise 2.6

Question 1

34 years ago

Now

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

$$W = 3u^2 \text{ (21u)}$$

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

$$R = 5u^2 \text{ (35u)}$$

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

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

$$17u = 34$$

$$1u = 34 \div 17$$

$$= 2$$

$$35u = 35 \times 2$$

$$= 70$$

Uncle Roy is 70 years old now.

Question 2

15 years ago

Now

$$S = 1u$$

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

$$E = 5u$$

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

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

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

$$3u = 15$$

$$1u = 15 \div 3$$

$$= 5$$

$$4u = 4 \times 5$$

$$= 20$$

$$31 + 20 = 51$$

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

Question 3

Now

Future

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

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

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

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

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

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

$$12u = 24$$

$$1u = 24 \div 12$$

$$= 2$$

Number of years later = $20u - 9u$

$$= 11u$$

Answers to Unit 2.6 – Difference Unchanged

Question 3 (Cont.)

$$11u = 11 \times 2$$

$$= 22$$

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

Question 4

At first

End

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

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

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

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

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

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

$$5u = 150$$

$$1u = 150 \div 5$$

$$= 30$$

$$15u = 15 \times 30$$

$$= 450$$

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

Question 5

At first

End

$$B = 5u^5 \text{ (25u)}$$

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

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

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

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

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

Difference in the button pins at first and at the end = 13u

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

Question 6

Clint

Emma

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

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

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

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

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

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

$$20u = 40$$

$$1u = 40 \div 20$$

$$= 2$$

$$24u = 24 \times 2$$

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

$$35u = 35 \times 2$$

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

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

Answers to Review Questions in Chapter 2

Question 1

(a) Total muffins sold = $15 + 20 + 25 = 60$

$$\text{Fraction} = \frac{15}{60} = \frac{1}{4}$$

(b) $\frac{2}{3}$ of choc muffins = $\frac{2}{3} \times 15 = 10$

10 choc muffins = \$18
1 choc muffins = \$1.80
Each chocolate muffins cost \$1.80.

Question 2

End

B	3u
G	3u

At first

B	3u	1u
G	3u	80

$$7u = 563 - 80$$

$$= 483$$

$$1u = 483 \div 7$$

$$= 69$$

$$3u = 3 \times 69$$

$$= 207$$

$$3u + 80 = 207 + 80$$

$$= 287$$

Michelle have 287 green beads at first.

Question 3

$$3 \text{ days} = \frac{1}{5} T \text{ used}$$

$$1 \text{ day} = \frac{1}{15} T \text{ used}$$

$$9 \text{ days} = \frac{9}{15} T \text{ used}$$

$$\frac{6}{15} T = 36 \text{ kg}$$

$$\frac{1}{15} T = 6 \text{ kg}$$

$$\frac{7}{15} T = 42 \text{ kg}$$

She used 42 kg of sugar in 7 days.

Question 4

$$\text{Fraction spent} = \frac{1}{4} + \frac{1}{5} = \frac{5}{20} + \frac{4}{20} = \frac{9}{20}$$

$$\text{Fraction of money left} = 1 - \frac{5}{12} = \frac{7}{12}$$

$$7u = 637 + 63$$

$$= 700$$

$$1u = 700 \div 7$$

$$= 100$$

$$2u = 2 \times 100$$

$$= 200$$

The pair of jeans cost \$200.

Answers to Review Questions in Chapter 2

Question 5

End

C	3u
M	3u

At first

C	3u	1u
M	3u	14

$$\begin{aligned} 7u &= 77 - 14 \\ &= 63 \\ 1u &= 63 \div 7 \\ &= 9 \\ \text{Difference} &= 14 - 9 \\ &= 5 \end{aligned}$$

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

Question 6

$$\begin{aligned} S &= 1u \\ D &= 1u \\ C &= 3u \end{aligned}$$

$$\begin{aligned} 3u &= 39 \\ 1u &= 39 \div 3 \\ &= 13 \\ 5u &= 5 \times 13 \\ &= 65 \end{aligned}$$

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

Question 7

$$\begin{aligned} \text{Savings} &= 1 - \frac{1}{4} - \frac{1}{12} - \frac{1}{3} \\ &= \frac{1}{3} \end{aligned}$$

$\frac{1}{3}$ Earnings = 2250

$$\begin{aligned} \text{Earnings} &= 2250 \times 3 \\ &= 6750 \end{aligned}$$

$$\begin{aligned} \text{Mother} &= \frac{1}{4} \times 6750 \\ &= 1687.50 \end{aligned}$$

He gave his mother **\$1687.50**.

Question 8

$$\begin{aligned} \text{Kalisa's} &= 1 - \frac{1}{4} - \frac{1}{12} \\ &= \frac{2}{3} \end{aligned}$$

$$\begin{aligned} \text{Difference} &= \frac{2}{3} - \frac{1}{12} \\ &= \frac{7}{12} \end{aligned}$$

$$\begin{aligned} \frac{7}{12} \text{ Total} &= 602 \\ \frac{1}{12} \text{ Total} &= 602 \times 7 \\ &= 86 \end{aligned}$$

$$\begin{aligned} \text{Total} &= 12 \times 86 \\ &= 1032 \end{aligned}$$

They shared **\$1032**.

Question 9

H	1u	7.5
M	1u	
J	1u	1u

Answers to Review Questions on Chapter 2

Question 9 (Cont.)

$$\begin{aligned} 5u &= 55 - 7.5 \\ &= 47.5 \\ 1u &= 47.5 \div 5 \\ &= 9.5 \\ H &= 9.5 + 7.5 \\ &= 17 \\ \text{Hamid's book cost} & \$17. \end{aligned}$$

Question 10

End

Y	4u
G	4u

At first

Y	4u	1u
G	4u	125

$$9u = 332 - 125$$

$$= 207$$

$$1u = 207 \div 9$$

$$= 23$$

$$5u = 5 \times 23$$

$$= 115$$

He had **115 yellow baskets** for sale at first.

Question 11

$$\begin{aligned} \frac{1}{5} \times 150 &= 120 \\ \text{Difference} &= 120 - 80 \\ &= 40 \end{aligned}$$

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

Question 12

$$\begin{aligned} \text{Aminah} &= 1 - \frac{3}{8} \\ &= \frac{5}{8} \end{aligned}$$

$$\begin{aligned} \frac{5}{8} \times 168 &= 105 \end{aligned}$$

Sharon have **105 seashells** to Aminah.

Question 13

$$\begin{aligned} \text{Read} &= \frac{1}{4} + \frac{1}{9} \\ &= \frac{3}{12} \end{aligned}$$

$$\begin{aligned} \text{Unread} &= 1 - \frac{3}{12} \\ &= \frac{5}{12} \end{aligned}$$

$$\begin{aligned} \frac{5}{12} \text{ Total} &= 95 \\ \frac{1}{12} \text{ Total} &= 95 \div 5 \end{aligned}$$

$$= 19$$

$$\begin{aligned} \text{Total} &= 8 \times 19 \\ &= 152 \end{aligned}$$

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

Question 14

$$\begin{aligned} \text{Difference} &= \frac{2}{5} - \frac{1}{4} \\ &= \frac{3}{20} \end{aligned}$$

$$\begin{aligned} \frac{3}{20} \text{ Salary} &= 890 \\ \frac{1}{20} \text{ Salary} &= 890 \div 5 \end{aligned}$$

$$= 178$$

Answers to Review Questions in Chapter 2

Question 14(Cont.)

$$\text{Salary} = 178 \times 12$$

$$= 2136$$

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

Question 15

$$\begin{aligned} \text{Fraction of money spent} &= \frac{1}{12} + \frac{5}{12} \\ &= \frac{2}{3} \end{aligned}$$

$$\text{Amount of money left} = 10 - 2$$

$$= 8$$

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

$$\text{Total} = 3 \times 8$$

$$= 24$$

She had **\$24** at first.

Question 16

In the end

L	2u	2u	2u
C	2u		

At first

L	2u	2u	2u	123
C	2u	1u		

510

$$9u = 510 - 123$$

$$= 387$$

$$1u = 387 \div 9$$

$$= 43$$

$$3u = 3 \times 43$$

$$= 129$$

$$\text{Difference} = 129 + 123$$

$$= 252$$

There were **252 more** boxes of love letters than cookies at first.

Chapter 3 Geometry

Answers to Unit 3.1—Angles

Question 3

$$(a) 200^\circ$$

$$(b) 52^\circ$$

Question 4

$$\text{AC} = 5.3 \text{ cm}$$

$$\text{BC} = 5.3 \text{ cm}$$

Question 5

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

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

Question 6

$$\angle BCD = 35^\circ$$

$$\angle ABC = 100^\circ$$

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

$$\angle BCA = 40^\circ$$

$$\angle CAB = 35^\circ$$

Question 7

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

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

$$\angle CAB = 35^\circ$$

$$\angle ABC = 100^\circ$$

$$\angle ADB = 10^\circ$$

$$\angle BDC = 40^\circ$$

$$\angle ADC = 35^\circ$$

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

$$\angle BCA = 40^\circ$$

$$\angle CAB = 35^\circ$$

$$\angle ADB = 10^\circ$$

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$$\angle ADB = 10^\circ$$

$$\angle BDC = 40^\circ$$

$$\angle ADC = 35^\circ$$

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

$$\angle BCA = 40^\circ$$

$$\angle CAB = 35^\circ$$

$$\angle ADB = 10^\circ$$

$$\angle BDC = 40^\circ$$

$$\angle ADC = 35^\circ$$

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

$$\angle BCA = 40^\circ$$

$$\angle CAB = 35^\circ$$

$$\angle ADB = 10^\circ$$

$$\angle BDC = 40^\circ$$

$$\angle ADC = 35^\circ$$

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

$$\angle BCA = 40^\circ$$

$$\angle CAB =$$

Answers to Unit 3.2 – 8-Point Compass**Let's Learn**

1. 90° to their right for the school that is on the West.
2. The Bakery
3. The Market
4. 225° turn

Think Further

1. 90° to their right for the school that is on the North
2. The Bakery
3. The Market
4. 315° turn

Let's Practice 3.2**Question 1**

- (a) Home
- (b) Sports hall
- (c) Sports hall
- (d) Club
- (e) $\frac{1}{8}$ – turn to her right / $\frac{7}{8}$ – turn to her left
- (f) $\frac{3}{8}$ – turn to her left / $\frac{5}{8}$ – turn to her right

Question 2

- (a) Toy section
- (b) Electrical section
- (c) $\frac{3}{8}$ – turn to his right / $\frac{5}{8}$ – turn to his left
- (d) Shoes section
- (e) Toy section
- (f) 315°

Question 3

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

Question 4

- (a) Theatre, West
- (b) Supermarket South
- (c) Temple, Northwest
- (d) MRT station, Temple
- (e) $\frac{5}{8}$ – turn to his right / $\frac{3}{8}$ – turn to his left, South
- (f) 180° clockwise turn to the left / 180° anticlockwise turn to right, Northeast

Answers to Unit 3.2 – 8-Point Compass**Question 5**

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

Question 6

- (a) 2 squares East, followed by 4 squares South
- (b) Fire station

Chapter 4 Decimals**Answers to Unit 4.1 – Decimals****Let's Get Started 4.1**

1. (a) 6.58 (b) 78.9 (c) 0.079
2. (a) 0.7 (b) 0.6 (c) 0.12
3. tenth
4. hundredth
5. 0.5
6. 0.8
7. (a) 8.3 (b) 16.5 (c) 18.3 (d) 25.0
8. (a) 5.26 (b) 25.65 (c) 46.74 (d) 65.28
9. 0.325, 0.65, 0.8, 0.91
10. (a) 6.853 (b) 4.458

Let's Practise 4.1**Question 1**
2.65 litres**Question 2**
\$15.49**Question 3**
\$86.00**Question 4**
3 m long, 2 m wide**Question 5**
3.9 kg**Question 6**
27.1**Answers to Unit 4.2 – Additional and Subtractions of Decimals****Let's Get Started 4.2**

1. (a) 8.9 (b) 2.49 (c) 7.2 (d) 0.9
(e) 1.29 (f) 123.47

2. (a) 2.1 (b) 3.33 (c) 0.05 (d) 8.8

Let's Practise 4.2

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 \$10.20
 $\$18 - \$8.20 = \$9.80$
 She would have **\$9.80** left.

Question 4
 $\$55.50 - \$19.75 = \$35.75$
 Both items cost \$35.75.
 $\$35.75 - \$25.65 = \$10.10$
 The pencil case cost **\$10.10**.

Question 5
 $\$60 - \$45.95 = \$14.05$
 Natalie had \$14.05 after buying a bag.
 $\$14.05 + \$20 = \$34.05$
 Natalie saved a total of **\$34.05**.

Question 6
 $\$389.75 + \$150.80 + \$45.30 = \585.85
 Chester spent a total of \$585.85
 $\$750 - \$585.85 = \$164.15$
 Chester had **\$164.15** left.

Answers to Unit 4.3 – Multiplication and Division of Decimals**Let's Get Started 4.3**

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

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

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

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

Let's Practise 4.3

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**.

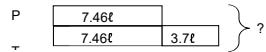
Question 6
 $\$23.40 \div 9 = \2.60
 Each hair clip cost **\$2.60**.

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 Chapter 4

Question 1



$$7.46 + 3.7 = 11.16$$

The tank can hold 11.16 litres of water.

$$11.16 + 7.46 = 18.62 \approx 18.6 \text{ t}$$

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

Question 2

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

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>
$T = 2u^3 (6u)$	$T = 6u$
$C = 5u^3 (15u)$	$C = 15u$
<u>Case 2</u>	
$T = 3u^2 (6u)$	$Total = 6u + 15u + 20u = 41u$

$K = 10u^2 (20u)$ 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.

Answers to Review Questions on Chapter 4

Question 4

<u>Case 1</u>	<u>Summary</u>
$A = 3u^{10} (30u)$	$A = 30u$
$B = 2u^{10} (20u)$	$B = 20u$
<u>Case 2</u>	
$A = 10u^3 (30u)$	$C = 21u$
$C = 7u^3 (21u)$	$Total = 30u + 20u + 21u = 71u$

Difference between Pouch B and Pouch C

$$= 21u - 20u$$

$$= 1u$$

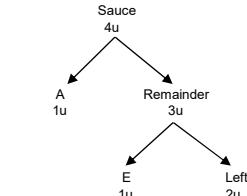
$$1u = 160$$

$$71u = 71 \times 160$$

$$= 11360$$

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

Question 5



$$4u = 10.8$$

$$1u = 10.8 \div 4$$

$$= 2.7$$

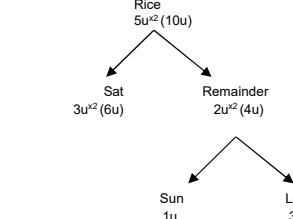
$$2u = 2 \times 2.7$$

$$= 5.4$$

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

Answers to Review Questions on Decimals

Question 6



$$3u = 3.9$$

$$1u = 3.9 \div 3$$

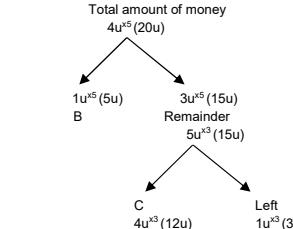
$$= 1.3$$

$$10u = 10 \times 1.3$$

$$= 13$$

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

Question 7



Difference between computer game and board game

$$= 12u - 5u$$

$$= 7u$$

$$7u = 41.65$$

$$1u = 41.65 \div 7$$

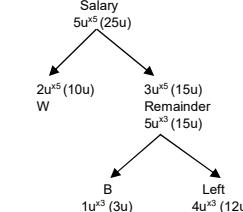
$$= 5.95$$

$$3u = 5.95 \times 3$$

$$= 17.85$$

Caleb had **\$17.85** left.

Question 8



Visit the forum page at www.on sponge.com for more challenging problem sums.

Answers to Review Questions on Decimals

Question 8 (Cont.)

$$10u = 1840$$

$$1u = 1840 \div 10$$

$$= 184$$

$$3u = 3 \times 184$$

$$= 552$$

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

Question 9

$$3u = 0.48$$

$$1u = 0.48 \div 3$$

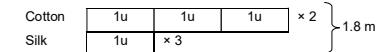
$$= 0.16$$

$$2u = 2 \times 0.16$$

$$= 0.32 \text{ (Flour)}$$

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

Question 10



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

$$= 6u$$

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

$$= 3u$$

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

$$= 9u$$

$$9u = 1.8$$

$$1u = 1.8 \div 9$$

$$= 0.2$$

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

Question 11

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

$$7u = 14$$

$$1u = 14 \div 7$$

$$= 2$$

$$6u = 6 \times 2$$

$$= 12$$

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

Answers to Review Questions on Decimals

Question 12

Item	Quantity of units	\times	Value of each unit (items)	Total Value (items)
S	3u	\times	25	75u
P	4u	\times	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	\times	Value of each item (\$)	Total Value (\$)
R	3u	\times	2.5	7.5u
G	2u	\times	1.20	2.4u
Total	5u			9.9u

$$9.9u = 198$$

$$1u = 198 \div 9.9 \\ = 20$$

$$\text{Difference} = 3u - 2u \\ = 1u$$

The customer bought **20 more** boxes of red than green lamp bulbs.

Question 14

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

$$3u = 12$$

$$1u = 12 \div 3 \\ = 4$$

$$6u = 4 \times 6 \\ = 24$$

Joash used **24 tubes** in all.

Answers to Review Questions on Decimals

Question 15

$$1S + 4N = 33.3$$

$$1S + 1N = 15.75$$

$$3N = 33.3 - 15.75$$

$$= 17.55$$

$$1N = 17.55 \div 3$$

$$= 5.85$$

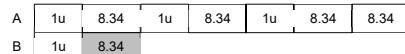
One notebook cost **\$5.85**.

Question 16

In the end



At first



$$4 \times 8.34 = 33.36$$

$$4u = 50.4 - 33.36$$

$$= 17.04$$

$$1u = 17.04 \div 4$$

$$= 4.26$$

$$3u = 3 \times 4.26$$

$$= 12.78$$

$$A (\text{at first}) = 12.78 + 33.36$$

$$= 46.14$$

The mass of Bag A was **46.14 kg** at first.

Question 17

$$\text{Mass of 6 packets of figs} = 6 \times 0.35$$

$$= 2.1$$

$$\text{Mass of 6 packets of cranberries} = 4.35 - 2.1$$

$$= 2.25$$

$$\text{Mass of 1 packet of cranberries} = 2.25 \div 6$$

$$= 0.375$$

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

Question 18

$$\text{Rope B} = 4.68 + 2.95$$

$$= 7.63$$

$$\text{Rope C} = 7.63 + 7.63$$

$$= 15.26$$

Answers to Review Questions on Decimals

Question 18 (Cont.)

$$\text{Total mass} = 2.95 + 7.63 + 15.26$$

$$= 25.84$$

$$\approx 25.8$$

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

Question 19

$$3 \text{ pens} = 3 \times 2.05$$

$$= 6.15$$

$$2 \text{ notebooks} = 2 \times 2.25$$

$$= 4.5$$

$$\text{Total cost} = 6.15 + 4.50$$

$$= 10.65$$

$$\text{Change} = 50 - 10.65$$

$$= 39.35$$

He would receive **\$39.35** change.

Question 20

$$\text{Distance between 2 flag poles} = 3.06 + 2$$

$$= 1.53$$

$$\text{Distance between the 1st and 6th pole} = 1.53 \times 5$$

$$= 7.65$$

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

Chapter 5 Graphs

Answers to Unit 5.1 – Interpreting Graphs

5.1 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 5.1

Question 1

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

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

(b) \$469

$$179 + 290 = 469$$

(c) Stall A and C

$$\text{Stall A} = 123 + 56$$

$$= 179$$

Visit the forum page at www.onspunge.com for more challenging problem sums.

Page 39

Answers to Unit 5.1 – Interpreting Graphs

Question 1 (Cont.)

$$\text{Stall B} = 212 + 78$$

$$= 290$$

$$\text{Stall C} = 112 + 67$$

$$= 179$$

$$\text{Stall D} = 178 + 61$$

$$= 239$$

(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**

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

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

$$\text{Difference} = 450 - 420$$

$$= 30$$

(c) **210 plates**

$$420 \div 2 = 210$$

(d) **70 plates**

Number of plates of curry rice sold = 1u
 Number of plates of duck noodles sold = 2u
 Total plates sold = 3u
 $210 \div 3 = 70$

Question 3

(a) **\$8**

Using Monday data,

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

$$= 1950$$

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

$$= 8$$

(b) **\$26 800**

$$(750 + 600 + 2000) \times 8 = 26 \text{ } 800$$

(c) **\$70 800**

$$32 \text{ } 000 + 38 \text{ } 800 = 70 \text{ } 800$$

(d) **150 people**

$$\text{Total people on Sunday} = 38 \text{ } 800 + 8$$

$$= 4850$$

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

$$= 4850 - 3500$$

$$= 1350$$

Answers to Unit 5.1 – Interpreting Graphs**Question 3 (Cont.)**

Movie A (Sun) = 1u

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,

Movie B (Sun) = 8×150

$$= 1200$$

$$\begin{aligned} \text{Total people on Saturday} &= 32\,000 \div 8 \\ &= 4\,000 \end{aligned}$$

$$\begin{aligned} \text{Total people for Movie B (Sat)} &= 4\,000 - 2\,700 - 300 \\ &= 1\,000 \end{aligned}$$

Question 4**(a) \$5**

Using Laundromat data,

$$\begin{aligned} \text{Total mass} &= 200 + 200 + 150 + 20 \\ &= 570 \end{aligned}$$

For Laundromat, Cost to wash 1 kg of laundry
Total amount collected

$$\begin{aligned} \text{Total mass} &= 2850 \\ &= 570 \\ &= 5 \end{aligned}$$

(b) 85 kgFor Drydays, total mass of laundry
 $= 2\,400 \div 5$

$$= 480$$

Mass of socks (Drydays)

$$= 480 - 150 - 220 - 100$$

$$= 10$$

$$\begin{aligned} \text{Total mass of socks (all 5)} &= 10 + 20 + 15 + 30 + 10 \\ &= 85 \end{aligned}$$

(c) 100 kgFor 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 $\frac{2}{3} \times 150 = 100$ **Answers to Unit 5.1 – Interpreting Graphs****Question 4 (Cont.)****(d) \$15 675**

$$\begin{aligned} (100 + 150 + 150 + 15) \times 5 &= 2075 \\ \text{CleanFast collected a total of } \$2075. \end{aligned}$$

$$\begin{aligned} (140 + 270 + 900 + 10) \times 5 &= 6600 \\ \text{QuickSpin collected a total of } \$6600. \\ 2400 + 2850 + 2075 + 1750 + 6600 &= 15\,675 \end{aligned}$$

(e) 850 kg

$$\begin{aligned} \text{Most shirts washed} &= 900 \\ \text{Least shirts washed} &= 50 \\ \text{Biggest Difference} &= 900 - 50 \\ &= 850 \end{aligned}$$

Question 5**(a) \$3**

$$\begin{aligned} \text{For Edmund, Amount spent on pencils + Amount spent on erasers + Amount spent on files} &= \$23.80 \\ 6 \times 0.30 + 2 \times 0.50 + \text{Amount spent on files} &= 23.80 \\ 23.80 - 1.80 - 1.00 &= 21 \\ \$21 \text{ was spent on the files.} \\ 21 \div 7 &= 3 \end{aligned}$$

(b) \$33.50

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

(c) 5 files

$$\begin{aligned} \text{For Cathy, Amount spent on pencils + Amount spent on erasers + Amount spent on files} &= \$17.90 \\ 17.90 - 2.40 - 0.50 &= 15 \\ \text{She spent } \$15 \text{ on files.} \\ 15 \div 3 &= 5 \end{aligned}$$

(d) Brian

$$\begin{aligned} \text{Number of files (Brian)} &= 14 - 11 - 2 \\ &= 1 \\ \text{Brian} &= 11 \times 0.30 + 2 \times 0.50 + 1 \times 3 \\ &= 7.30 \\ \text{Cathy} &= 8 \times 0.30 + 1 \times 0.50 + 5 \times 3 \\ &= 17.90 \end{aligned}$$

(e) \$98.10

$$\begin{aligned} \text{Abel} &= 17 \times 0.30 + 3 \times 0.50 + 3 \times 3 \\ &= 15.60 \\ 15.60 + 7.30 + 17.90 + 33.50 + 23.80 &= 98.10 \end{aligned}$$

Answers to Unit 5.2 – Line Graphs**Let's Practise 5.2****Question 1****(a) 9 a.m.****(b) 6 a.m.****(c) 5200 cars**

$$\begin{aligned} \text{Number of cars from 6 a.m. to 11 a.m.} &= 100 + 500 + 1300 + 1700 + 900 + 700 \\ &= 5\,200 \end{aligned}$$

(d) 7 a.m. to 8 a.m.**(e) 9 a.m. to 10 a.m.****Question 2****(a) 134****(b) May****(c) Jan to Feb, Feb to Mar**

$$\begin{aligned} \text{Jan to Feb} &= \text{increase by 22} \\ \text{Feb to Mar} &= \text{increase by 22} \\ \text{Mar to Apr} &= \text{decrease by 27} \\ \text{Apr to May} &= \text{increase by 72} \\ \text{May to June} &= \text{decrease by 25} \end{aligned}$$

(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**

$$\begin{aligned} \text{When temperature } = 14^\circ\text{C, Time is 7.40 a.m.} \\ \text{When temperature } = 20^\circ\text{C, Time is 8.10 a.m.} \end{aligned}$$

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

(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**

$$\begin{aligned} \text{Amount of water at 10 a.m.} - \text{Amount of water at 9 a.m.} &= 450 - 220 = 230 \end{aligned}$$

(c) 12.30 p.m.**(d) 4 h 30 min**

$$\begin{aligned} \text{1st time at 285 litres, time is 7 a.m.} \\ \text{2nd time at 285 litres, Time is 11:30 a.m.} \\ \text{Elapsed time is 4 h 30 min.} \end{aligned}$$

Answers to Unit 5.2 – Line Graphs**Question 4 (Cont.)****(e) 10 a.m. to 11 a.m., 12 noon to 1 p.m.**

$$7 \text{ a.m. to 8 a.m. (decrease by 15 litres)}$$

$$8 \text{ a.m. to 9 a.m. (decrease by 50 litres)}$$

$$9 \text{ a.m. to 10 a.m. (increase by 230 litres)}$$

$$10 \text{ a.m. to 11 a.m. (decrease by 130 litres)}$$

$$11 \text{ a.m. to 12 noon. (decrease by 70 litres)}$$

$$12 \text{ noon to 1 p.m. (decrease by 130 litres)}$$

Question 5**(a) 1700 houses**

$$\begin{aligned} \text{Increase from 2008 to 2009} &= 1200 - 1100 \\ &= 100 \end{aligned}$$

$$\begin{aligned} \text{Increase from 2009 to 2010} &= 5 \times 100 \\ &= 500 \end{aligned}$$

$$\begin{aligned} \text{Number of private houses sold in 2010} &= 1200 + 500 = 1700 \end{aligned}$$

(b) 2000 houses

$$\begin{aligned} \text{Number of private houses sold in 2011} &= 2 \times \text{number of private houses sold in 2012} \\ &= 2 \times 1000 \\ &= 2000 \end{aligned}$$

(c) Years 2009 and 2013

$$\text{Year 2008} = 1100$$

$$\text{Year 2009} = 1200$$

$$\text{Year 2010} = 1700$$

$$\text{Year 2011} = 2000$$

$$\text{Year 2012} = 1000$$

$$\text{Year 2013} = 1200$$

(d) 5900 houses

$$\begin{aligned} \text{Total number of houses (2010 to 2013)} &= 1700 + 2000 + 1000 + 1200 \\ &= 5900 \end{aligned}$$

Question 6**(a) 6 seconds****(b) 8 m****(c) 20 seconds****(d) 10 seconds**

$$\text{1st time ball is at 7 m} \rightarrow 00:00:04$$

$$\text{2nd time ball is at 7 m} \rightarrow 00:00:14$$

$$\text{Time elapsed} = 14 - 4$$

$$= 10$$

(e) 8 seconds

$$\text{Ball is at 0 m} \rightarrow 8 \text{ seconds}$$

$$\text{Ball increases height to 7.5 m} \rightarrow 16 \text{ seconds}$$

$$\text{Time elapsed} = 16 - 8$$

$$= 8$$

Answers to Unit 5.2 – Line Graphs

Question 6 (Cont.)

(f) 15.5 m

The ball falls from 10m to ground (8 s) = 10 m
The ball bounces from ground to 5.5 m (12 s)
= 5.5 m
Total = $10 + 5.5$
= 15.5

Answers to Review Question on Chapter 5

Question 1

(a) June

(b) July savings = 10
October savings = 45
Difference = $45 - 10$
= 35

Question 2

Month	Sale	Change
Nov	250	
Dec	300	↑50
Jan	200	↓100
Feb	150	↓50
Mar	100	↓50
Apr	50	↓50

The sale of the pots decreased the most between December and January.

(b)

Month	Sale	Amount collected (\$)
Nov	250	$250 \times 29 = 7250$
Dec	300	$300 \times 29 = 8700$
Jan	200	$200 \times 29 = 5850$
Feb	150	$150 \times 29 = 4300$
Mar	100	$100 \times 29 = 2900$
Apr	50	$50 \times 29 = 1450$

Total amount collected

$$= 7250 + 8700 + 5850 + 4300 + 2900 + 1450 \\ = 30\,450$$

The total amount collected is **\$30 450**.

Question 3

(a) Difference = $700 - 325$
= 375

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

(b) Total = $700 + 325 + 450 + 825 + 600$
= 2900

They spent a total of **\$2900** in a month.

Answers to Review Question on Chapter 5

Question 4

(a)

Month	Sale
Apr	150
May	75
Jun	200
Jul	125
Aug	225

$$\text{Difference} = 150 - 75 \\ = 75$$

75 more bedsheets were sold in April than in May.

(b)

Month	Sale	Amount collected (\$)
May	75	$75 \times 24 = 1800$
Jun	200	$200 \times 24 = 4800$
Jul	125	$125 \times 24 = 3000$
Aug	225	$225 \times 24 = 5400$

$$\text{Total amount collected} = 1800 + 4800 + 3000 + 5400 \\ = 15\,000$$

The total amount collected would be **\$15 000**.

Question 5

$$\text{No. of children} = 159 + 29 + 36 \\ = 224$$

224 children read at least 2 books in a week.

Question 6

Class	Amount of clothings donated	No. of children
4A	266	$266 \div 7 = 38$
4B	224	$224 \div 7 = 32$
4C	238	$238 \div 7 = 34$

$$\text{Total} = 38 + 32 + 34 \\ = 104$$

There were 104 children altogether in the 3 classes.

Chapter 6 Area and Perimeter

Answers to Unit 6.1 – Finding Area and Perimeter with Given Sides

Let's Practise 6.1

Question 1

(a) Area of Square A = $9 \text{ cm} \times 9 \text{ cm}$
= **81 cm²**

Perimeter of Square A = $4 \times 9 \text{ cm}$
= **36 cm**

Answers to Unit 6.1 – Finding Area and Perimeter with Given Sides

(b) Area of Rectangle B = $8 \text{ m} \times 4 \text{ m}$
= **32 m²**

$$\text{Perimeter of Rectangle B} = 8 \text{ m} + 4 \text{ m} + 8 \text{ m} + 4 \text{ m} \\ = **24 \text{ m}**$$

(c) Area of Rectangle C = $17 \text{ m} \times 9 \text{ m}$
= **153 m²**

$$\text{Perimeter of Rectangle C} = 17 \text{ m} + 9 \text{ m} + 17 \text{ m} + 9 \text{ m} \\ = **52 \text{ m}**$$

Answers to Unit 6.1 – Finding Area and Perimeter with Given Sides

Question 4 (Cont.)

(b) Perimeter of garden = $64 \text{ m} + 2$

$$= **32 \text{ m}**$$

$$\text{Length of garden} = 32 \text{ m} \div 4 \\ = **8 \text{ m}**$$

$$\text{Area of garden} = 8 \text{ m} \times 8 \text{ m} \\ = **64 \text{ m}^2**$$

The area of the garden is **64 m²**.

Question 5

Length of CD = 2u.

$$\text{Distance covered walked by the ant} = 2u + 2u + 1u \\ = **5u**$$

$$5u = 37.5$$

$$1u = 37.5 \div 5 \\ = **7.5**$$

$$2u = 2 \times 7.5 \\ = **15**$$

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.

$$\text{Total length of wire} = 1u + 3u + 1u + 3u \\ = **8u**$$

$$8u = 96$$

$$1u = 96 \div 8 \\ = **12**$$

(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**.

Question 4

(a) $2 \times \text{length of field} = 20 \text{ m} + 20 \text{ m}$

$$= **40 \text{ m}**$$

$2 \times \text{breadth of field} = 64 \text{ m} - 40 \text{ m}$

$$= **24 \text{ m}**$$

Breadth of field = $24 \text{ m} \div 2$

$$= **12 \text{ m}**$$

The breadth of the field is **12 m**.

Answers to Unit 6.2 – Finding Sides with Given Area or Perimeter

Let's Practise 6.2

Question 1

(a)
Area of Square A = $1u \times 1u$
 $1u \times 1u = 49$ (7×7)
 $1u = 7$

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

(b)
Length of Rectangle B = $84 \text{ m}^2 \div 8 \text{ m}$
 $= 10.5 \text{ m}$
Perimeter of Rectangle B = $(10.5 \text{ m} \times 2) + (8 \text{ m} \times 2)$
 $= 37 \text{ m}$

(c)
Area of Square C = $1u \times 1u$
 $1u \times 1u = 25$ (5×5)
 $1u = 5$
Length of Square C = 5 cm
Perimeter of Square C = $4 \times 5 \text{ cm}$
 $= 20 \text{ cm}$

Question 2

(a)
 $2 \times \text{breadth} = 2 \times 14 \text{ cm}$
 $= 28 \text{ cm}$
 $2 \times \text{length} = 78 \text{ cm} - 28 \text{ cm}$
 $= 50 \text{ cm}$
Length of Rectangle D = $50 \text{ cm} \div 2$
 $= 25 \text{ cm}$
Area of Rectangle D = $25 \text{ cm} \times 14 \text{ cm}$
 $= 350 \text{ cm}^2$

(b)
Length of Square E = $24 \text{ cm} \div 4$
 $= 6 \text{ cm}$
Area of Square E = $6 \text{ cm} \times 6 \text{ cm}$
 $= 36 \text{ cm}^2$

(c)
 $2 \times \text{breadth} = 2 \times 17 \text{ cm}$
 $= 34 \text{ cm}$
 $2 \times \text{Length} = 92 \text{ cm} - 34 \text{ cm}$
 $= 58 \text{ cm}$
Length of Rectangle F = $58 \text{ cm} \div 2$
 $= 29 \text{ cm}$
Area of Rectangle F = $29 \text{ cm} \times 17 \text{ cm}$
 $= 493 \text{ cm}^2$

Answers to Unit 6.2 – Finding Sides with Given Area or Perimeter

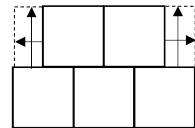
Question 3

Length of wire = $80 \text{ cm} + 60 \text{ cm} + 80 \text{ cm} + 60 \text{ cm}$
 $= 280 \text{ cm}$
Length of each side of square = $280 \text{ cm} \div 7$
 $= 40 \text{ cm}$
The length of each side of the square is **40 cm**.

Question 4

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

Length of each square = 4 cm

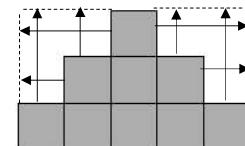


$12 \text{ cm} + 12 \text{ cm} + 8 \text{ cm} + 8 \text{ cm} = 40 \text{ cm}$
The perimeter of the figure is **40 cm**.

Question 5

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

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 = $4 \text{ cm} \times 4 \text{ cm}$
 $= 16 \text{ cm}^2$ ($1u$)

Answers to Unit 6.2 – Finding Sides with Given Area or Perimeter

Question 6 (cont.)

Area of Square B = $4 \times 16 \text{ cm}^2$
 $= 64 \text{ cm}^2$
Length of Square B = 8 cm

Area of Square C = $9 \times 16 \text{ cm}^2$
 $= 144 \text{ cm}^2$
Length of Square C = 12 cm

Area of Square D = $16 \times 16 \text{ cm}^2$
 $= 256 \text{ cm}^2$
Length of Square D = 16 cm

Perimeter of Square A = $4 \times 4 \text{ cm}$
 $= 16 \text{ cm}$

Perimeter of Square B = $4 \times 8 \text{ cm}$
 $= 32 \text{ cm}$

Perimeter of Square C = $4 \times 12 \text{ cm}$
 $= 48 \text{ cm}$

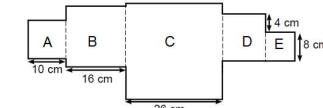
Perimeter of Square D = $4 \times 16 \text{ cm}$
 $= 64 \text{ cm}$

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

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

Answers to Unit 6.3 – Area and Perimeter of Composite Figures

Question 2 (cont.)



(from left)

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

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

Area of Square C = $26 \text{ cm} \times 8 \text{ cm}$
 $= 676 \text{ cm}^2$

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

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

Total area of figure
 $= 100 \text{ cm}^2 + 256 \text{ cm}^2 + 676 \text{ cm}^2 + 144 \text{ cm}^2 + 64 \text{ cm}^2$
 $= 1240 \text{ cm}^2$

The area of the figure is **1240 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

Area of 1 rectangle = $600 \text{ cm}^2 \div 8$
 $= 75 \text{ cm}^2$

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	✓

Answers to Unit 6.3 – Area and Perimeter of Composite Figures

Question 4 (Cont.)

Length of each rectangle = 15 cm
Breadth of each rectangle = 5 cm
Length of figure = $6 \times 5 \text{ cm}$
= 30 cm
Breadth of figure = $5 \text{ cm} + 15 \text{ cm}$
= 20 cm
Perimeter of figure = $30 \text{ cm} + 30 \text{ cm} + 20 \text{ cm} + 20 \text{ cm}$
= 100 cm
The perimeter of the figure is **100 cm**.

Question 5

Area of one of the rectangles = $20 \text{ m} \times 10 \text{ m}$
= **200 m²**

Question 6

Area of large rectangle = $10 \text{ cm} \times 6 \text{ cm}$
= 60 cm²
Area of overlapped 4 squares = $4 \times 1 \text{ cm}^2$
= 4 cm²
Area of shaded region = $60 \text{ cm}^2 - 4 \text{ cm}^2 = 4 \text{ cm}^2$
= 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 = $2 \text{ m} + 10 \text{ m} + 12 \text{ m}$
= 24 m
Breadth of park = $6 \text{ m} + 2 \text{ m} + 2 \text{ m}$
= 10 m
Area of park = $24 \text{ m} \times 10 \text{ m}$
= 240 m²
Area of shaded region = $240 \text{ m}^2 - 72 \text{ m}^2$
= 168 m²
The area of shaded region is **168 m²**.

Answers to Unit 6.3 – Area and Perimeter of Composite Figures

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 = $9 \text{ m} + 2 \text{ m} + 2 \text{ m}$
= 13 m

Breadth of park with pavement = $7 \text{ m} + 2 \text{ m} + 2 \text{ m}$
= 11 m

Area of park with pavement = $13 \text{ m} \times 11 \text{ m}$
= 143 m²

Area of pavement = $143 \text{ m}^2 - 63 \text{ m}^2$
= 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 = $2 \times 4 \text{ cm}$
= 8 cm

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

Question 10

(a) Total distance travelled = $4 \text{ cm} + 2 \text{ cm} + 2 \text{ cm} + 2 \text{ cm} + 4 \text{ cm} + 2 \text{ cm} + 4 \text{ cm} + 2 \text{ cm} = 22 \text{ cm}$

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

(b) Area of 1st step = $14 \text{ cm} \times 2 \text{ cm}$
= 28 cm²

Area of 2nd step = $10 \text{ cm} \times 2 \text{ cm}$
= 20 cm²

Area of 3rd step = $6 \text{ cm} \times 2 \text{ cm}$
= 12 cm²

Area of 4th step = $4 \text{ cm} \times 2 \text{ cm}$
= 8 cm²

Total area of the shaded region = $28 \text{ cm}^2 + 20 \text{ cm}^2 + 12 \text{ cm}^2 + 8 \text{ cm}^2$
= 68 cm²

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

Answers to Unit 6.3 – Area and Perimeter of Composite Figures

Question 11

Length of 2 strokes = $20 \text{ cm} - 14 \text{ cm}$
= 6 cm

Perimeter

= $30 \text{ cm} + 20 \text{ cm} + 30 \text{ cm} + 20 \text{ cm} + 6 \text{ cm} + 6 \text{ cm}$
= 112 cm

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

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 cm²

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

Answers to Unit 6.4 – Area and Perimeter with Proportional Sides

Let's Practise 6.4

Question 1

Unitary approach

$$\begin{array}{l} L = 3u \\ L = 3u \\ B = 1u \\ B = 1u \\ \hline \end{array} \quad \left. \begin{array}{l} \\ \\ \\ \end{array} \right\} 128$$

Total = 8u

Each rectangle has – 2 lengths
– 2 breadths

$$8u = 128$$

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

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

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

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

Question 2

Let the length of Square A = 1u
1u = 2 cm

Length of Rectangle B = 8 cm
= $8 \times 2 \text{ cm}$
= 16 cm

Breadth of Rectangle B = 4 cm
= $4 \times 2 \text{ cm}$
= 8 cm

Perimeter of Rectangle B = $16 + 16 + 8 + 8$
= 48

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

Question 3

Perimeter	Rectangle
$\text{Sq} = 2u^2 (4u)$	$B = 3u$
$\text{Rec} = 7u^2 (14u)$	$L = 4u$
$\text{Total Perimeter} = 7u + 7u$	$= 14u$

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

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

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

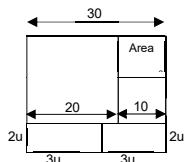
$$\begin{aligned} 1u &= 40 \div 4 \\ &= 10 \end{aligned}$$

Answers to Unit 6.4 – Area and Perimeter with Proportional Sides

Question 3 (Cont.)

$$\begin{aligned}\text{Breadth of rectangle } (3u) &= 3 \times 10 \\ &= 30 \\ \text{The breadth of rectangle is } 30 \text{ cm.}\end{aligned}$$

Question 4



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

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

$\begin{aligned}\text{Length of 1 big square} &= 10 \text{ cm} + 10 \text{ cm} \\ &= 20 \text{ cm}\end{aligned}$

$\begin{aligned}\text{Length of figure} &= 10 \text{ cm} + 20 \text{ cm} \\ &= 30 \text{ cm}\end{aligned}$

$\begin{aligned}\text{Length of 1 rectangle} &= 30 \text{ cm} + 2 \\ &= 15 \text{ cm}\end{aligned}$

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

$3u = 15 \text{ cm}$

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

$= 5 \text{ cm}$

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

$\begin{aligned}2u &= 5 \text{ cm} \times 2 \\ &= 10 \text{ cm}\end{aligned}$

$\begin{aligned}\text{Area of 1 rectangle} &= 15 \text{ cm} \times 10 \text{ cm} \\ &= 150 \text{ cm}^2\end{aligned}$

$\begin{aligned}\text{Area of 1 big square} &= 20 \text{ cm} \times 20 \text{ cm} \\ &= 400 \text{ cm}^2\end{aligned}$

$\begin{aligned}\text{Area of figure} &= 100 + 100 + 400 + 150 + 150 \\ &= 900\end{aligned}$

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	✓

$\begin{aligned}\text{Perimeter} &= 15 \text{ cm} + 15 \text{ cm} + 9 \text{ cm} + 9 \text{ cm} \\ &= 48 \text{ cm}\end{aligned}$

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

Answers to Unit 6.4 – Area and Perimeter with Proportional Sides

Question 6

ABCD

$B = 6u$

$L = 6u$

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

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

$= 6u$

$\begin{aligned}\text{Length } (C + A) &= 4u + 2u \\ &= 6u\end{aligned}$

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

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

$= 6 \text{ cm}$

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

$\begin{aligned}6u &= 6 \times 6 \text{ cm} \\ &= 36 \text{ cm}\end{aligned}$

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

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

$= 12 \text{ cm}$

$\begin{aligned}\text{Length of B } (4u) &= 4 \times 6 \text{ cm} \\ &= 24 \text{ cm}\end{aligned}$

$\begin{aligned}\text{Area of B} &= 12 \text{ cm} \times 24 \text{ cm} \\ &= 288 \text{ cm}^2\end{aligned}$

The area of B is **288 cm²**.

Answers to Unit 6.5 – Area and Perimeter of Squares using Guess and Check

Let's Practise 6.5

Question 1

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

$\begin{aligned}\text{Perimeter} &= 9 + 9 + 9 + 3 + 12 + 12 + 12 + 6 \\ &= 27 + 3 + 36 + 6 \\ &= 72\end{aligned}$

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**.

Answers to Unit 6.5 – Area and Perimeter of Squares using Guess and Check

Question 3

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

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

$= 44 \text{ cm}$

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
$7 \times 7 = 49$	$15 \times 15 = 225$	$225 + 49 = 274$	✗
$6 \times 6 = 36$	$14 \times 14 = 196$	$196 + 36 = 232$	✗
$5 \times 5 = 25$	$13 \times 13 = 169$	$169 + 25 = 194$	✓

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
$12 \times 2 = 24$	$2 \times 2 = 4$	$24 + 4 = 28$	✗
$8 \times 2 = 16$	$3 \times 2 = 6$	$16 + 6 = 22$	✗
$6 \times 2 = 12$	$4 \times 2 = 8$	$12 + 8 = 20$	✓

4 squares wide

6 squares long

Answers to Review Questions on Chapter 6

Question 1

$\text{Area of rectangle} = 20 \text{ cm} \times 16 \text{ cm}$

$= 320 \text{ cm}^2$

Area of the shaded part of the figure

$= 320 \text{ cm}^2 - 150 \text{ cm}^2$

$= 170 \text{ cm}^2$

Question 2

$\text{Length of small square} = 12 \text{ cm} \div 3$

$= 4 \text{ cm}$

Perimeter

$\begin{aligned}&= 12 \text{ cm} + 12 \text{ cm} + 4 \text{ cm} + 4 \text{ cm} + 20 \text{ cm} + 12 \text{ cm} + 4 \text{ cm} \\ &= 72 \text{ cm}\end{aligned}$

Visit the forum page at www.onspunge.com for more challenging problem sums.

Answers to Review Questions on Chapter 6

Question 3

$\text{Area of square C} = 8 \text{ cm} \times 8 \text{ cm}$

$= 64 \text{ cm}^2$

$\text{Area of rectangle B} = 2 \times 64 \text{ cm}^2$

$= 128 \text{ cm}^2$

$\text{Area of rectangle A} = 3 \times 128 \text{ cm}^2$

$= 384 \text{ cm}^2$

$\text{Total area of figure} = 64 \text{ cm}^2 + 128 \text{ cm}^2 + 384 \text{ cm}^2$

$= 576 \text{ cm}^2$

Question 4

$\text{Length of each square} = 36 \text{ cm} \div 3$

$= 12 \text{ cm}$

$\text{Area of rectangle} = 12 \text{ cm} \times 10 \text{ cm}$

$= 120 \text{ cm}^2$

Question 5

$\text{Area of big rectangle} = 15 \text{ cm} \times 12 \text{ cm}$

$= 180 \text{ cm}^2$

$\text{Area of shaded rectangle} = 6 \text{ cm} \times 2 \text{ cm}$

$= 12 \text{ cm}^2$

$\text{Area of the unshaded part} = 180 \text{ cm}^2 - 12 \text{ cm}^2$

$= 168 \text{ cm}^2$

Question 6

$\text{Area of square} = 7 \text{ cm} \times 7 \text{ cm}$

$= 49 \text{ cm}^2$

$\text{Area of rectangle} = 2 \times 49 \text{ cm}^2$

$= 98 \text{ cm}^2$

$\text{Area of the whole figure} = 49 \text{ cm}^2 + 98 \text{ cm}^2$

$= 147 \text{ cm}^2$

Question 7

$\text{Area of rectangle after 1st fold} = 2 \times 25 \text{ cm}^2$

$= 50 \text{ cm}^2$

$\text{Area of square before fold} = 2 \times 50 \text{ cm}^2$

$= 100 \text{ cm}^2$

$100 = 10 \times 10$

$\text{Length of paper unfolded} = 10 \text{ cm}$

$\text{Perimeter of paper} = 4 \times 10 \text{ cm}$

$= 40 \text{ cm}$

Question 8

$\text{Area of 1 square} = 256 \text{ cm}^2 \div 4$

$= 64 \text{ cm}^2$

$64 = 8 \times 8$

$\text{Length of each square} = 8 \text{ cm}$

$\text{Perimeter of figure} = 16 \text{ cm} + 24 \text{ cm} + 16 \text{ cm} + 24 \text{ cm}$

$= 80 \text{ cm}$



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CONQUER PROBLEM SUMS

- Proven strategies used by top performing schools to conquer problem sums
- Based on latest MOE syllabus
- Challenging questions to excel in Upper Primary

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Answer Booklet

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4

Primary



P4 Solutions

Note: In all solutions, u represents Units

Chapter 1 Whole Numbers

Unit 1.1 – Divisibility Test

Qn 1

- (a) 431 and 569 (b) 712 and 611 (c) 342
(d) 324 and 521 (e) 441 and 621

Unit 1.2 – Divisor, Quotient and Remainder

Qn 1

$\begin{array}{r} 616 \\ \hline 7 \overline{)4317} \\ -42 \\ \hline 11 \\ -7 \\ \hline 47 \\ -42 \\ \hline 5 \end{array}$	$\begin{array}{r} 279 \\ \hline 9 \overline{)2513} \\ -18 \\ \hline 71 \\ -63 \\ \hline 83 \\ -81 \\ \hline 2 \end{array}$	$\begin{array}{r} 664 \\ \hline 8 \overline{)5316} \\ -48 \\ \hline 51 \\ -48 \\ \hline 36 \\ -32 \\ \hline 4 \end{array}$
---	--	--

Quotient = 616 Quotient = 279 Quotient = 664
Remainder = 5 Remainder = 2 Remainder = 4

Qn 4

$$12 \times 6 + 5 = 72 + 5 = 77$$

Qn 5

$$123 \times 8 + 2 = 984 + 2 = 986$$

Qn 6

$$104 \times 9 + 6 = 936 + 6 = 942$$

Qn 7

$$113 \times 4 + 3 = 452 + 3 = 455$$

Qn 8

$$203 \times 7 + 6 = 1421 + 6 = 1427$$

Qn 9

$$\begin{aligned} 14 \times 8 + 6 &= 118 \\ 12 \times 10 &= 120 \\ 120 - 118 &= 2 \text{ more chairs} \end{aligned}$$

Qn 10

$434 \div 8 = 54$ remainder 2
Total she needs = 55 packets
 $55 \times \$2 = \110
Miss Tan would need \$110.

Qn 11

$40 \times 6 = 240$
 $240 \div 14 = 17$ packets with 2 remainders
Total packets needed = 18 packets

Unit 1.3 – Highest Common Factor (HCF)

Qn 1

Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24
Factors of 40: 1, 2, 4, 5, 8, 10, 20, 40
Common factors of 24 and 40 are 1, 2, 4 and 8.
Highest common factor of 24 and 40 is 8.

Qn 2

Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36
Factors of 60: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60
Common factors of 36 and 60 are 1, 2, 3, 4, 6 and 12.
Highest common factor of 36 and 60 is 12.

Qn 3

Factors of 45: 1, 3, 5, 9, 15, 45
Factors of 80: 1, 2, 4, 5, 8, 10, 16, 20, 40, 80
Common factors of 45 and 80 are 1 and 5.
Highest common factor of 45 and 80 is 5.

Qn 4

Factors of 16: 1, 2, 4, 8, 16
Factors of 40: 1, 2, 4, 5, 8, 10, 20, 40
Common factors of 16 and 40 are 1, 2, 4 and 8.
Highest common factor of 16 and 40 is 8.

Qn 5

Factors of 90: 1, 2, 3, 5, 6, 9, 10, 15, 18, 30, 45, 90
Factors of 75: 1, 3, 5, 15, 25, 75
Common factors of 75 and 90 are 1, 3, 5 and 15.
Highest common factor of 75 and 90 is 15.

Unit 1.4 – Distribution involving Multiplication and Division

Qn 1 9 Qn 2 7 Qn 3 14 Qn 4 20
Qn 5 32 Qn 6 18 Qn 7 10

Unit 1.5 – Word Problems involving Common Factors

Qn 1

2	40	48
---	----	----

 (a) Maximum number of bags = $2 \times 2 \times 2 = 8$ bags

2	20	24
---	----	----

 Qn 2

2	10	12
---	----	----

 (b) In each bag = $\frac{5}{6}$ candy bars + $\frac{6}{6}$ chocolate bars

Qn 2

2	36	60	90
---	----	----	----

 (a) Maximum number of goodie bags = $2 \times 3 = 6$ bags

3	18	30	45
---	----	----	----

6	10	15
---	----	----

 (b) In each bag = 6 packets of sweets + 10 bars of chocolates + 15 packets of biscuit = 31 items

Qn 3

2	60	90	120
---	----	----	-----

 (a) Total people catered to = $2 \times 3 \times 5 = 30$ people

3	30	45
---	----	----

5	10	15
---	----	----

 (b) Total items each person can take = 2 sticks of satays + 3 cups of jelly + 4 cupcakes = 9 items

Qn 4

2	80	100
---	----	-----

 (a) Largest possible length of each tile = $2 \times 5 \times 2 = 20$ cm

5	40	50
---	----	----

2	8	10
---	---	----

 (b) Number of tiles needed = $4 \times 5 = 20$

Qn 5

2	120	150
---	-----	-----

 (a) Largest possible length of each side of the tile = $2 \times 5 \times 3 = 30$ cm

5	60	75
---	----	----

3	12	15
---	----	----

 (b) Maximum number of tiles = $4 \times 5 = 20$

Qn 6

10	80	140	180
----	----	-----	-----

 (a) Greatest possible length = $10 \times 2 = 20$ cm

2	8	14	18
---	---	----	----

4	7	9
---	---	---

 (b) Smaller pieces = $4 + 7 + 9 = 20$

Unit 1.6 – Lowest Common Multiple (LCM)

Qn 1
LCM of 3 and 5 is 15.
4th October → 15 days later → 19th October
They would meet again on 19th October.

Qn 2

$$\begin{array}{r} 3 \\ 2 \\ 2 \\ 5 \\ 2 \\ \hline 1 & 1 \end{array} \quad \begin{array}{l} \text{LCM of } 36 \text{ and } 30 \\ = 3 \times 2 \times 3 \times 5 \times 2 \\ = 180 \text{ seconds} = 3 \text{ minutes} \\ \text{8.10 p.m. } \xrightarrow{\text{3 minutes later}} \text{8.13 p.m.} \end{array}$$

Qn 3

$$\begin{array}{r} 2 \\ 5 \\ 3 \\ 1 \\ 2 \\ \hline 1 & 1 \end{array} \quad \begin{array}{l} \text{LCM of } 10, 15 \text{ and } 12 \\ = 2 \times 5 \times 3 \times 2 \\ = 60 \text{ seconds} = 1 \text{ minute} \\ \text{(a) 11 p.m. } \xrightarrow{\text{1 minute later}} \text{11.01 p.m.} \\ \text{(b) Since } 1 \text{ h} = 60 \text{ min } \geq 60 \text{ times} \end{array}$$

Qn 4

$$\begin{array}{r} 2 \\ 2 \\ 2 \\ 1 \\ \hline 1 & 1 \end{array} \quad \begin{array}{l} \text{Shortest length} \\ = \text{LCM of } 2, 4 \text{ and } 8 \\ = 2 \times 2 \times 2 = 8 \end{array}$$

Qn 5

$$\text{LCM of } 2, 3 \text{ and } 5 = 2 \times 3 \times 5 = 30$$

Qn 6

$$\begin{array}{l} \text{Groups of } 5 = 3 \text{ extra} \\ \text{Groups of } 8 = 7 \text{ extra} \\ \text{Groups of } 5: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 \\ (\text{Add 3}): 8, 13, 18, \textcircled{23}, 28, 33, 38, 43, 48, 53, 58, 63 \\ \text{Groups of } 8: 8, 16, 24, 32, 40, 48, 56, 64, 72, 80 \\ (\text{Add 7}): 15, \textcircled{23}, 31, 39, 47, 55, 63, 71, 79, 87 \\ \text{Clara has } 23 \text{ sweets.} \end{array}$$

Qn 7

$$\begin{array}{l} \text{Groups of 4: } 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44 \\ (\text{Add 2}): 6, 10, 14, 18, 22, \textcircled{20}, 30, 34, 38, 42, 46 \\ \text{Groups of 7: } 7, 14, 21, \textcircled{28}, 35, 42, 49, 56, 63, 70 \\ (\text{Subtract 2}): 5, 12, 19, \textcircled{20}, 33, 40, 47, 54, 61, 68 \\ \text{Lorraine has } 26 \text{ chocolates.} \end{array}$$

Qn 8

$$\begin{array}{l} \text{Groups of 6: } 6, 12, 18, 24, 30, 36, 42, 48, 54, 60 \\ (\text{Add 5}): 11, \textcircled{17}, 23, 29, 35, 41, 47, 53, 59, 65 \\ \text{Groups of 5: } 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 \\ (\text{Subtract 3}): 2, 7, 12, \textcircled{17}, 22, 27, 32, 37, 42, 47, 52, 57 \\ \text{Michael has } 17 \text{ balloons.} \end{array}$$

Qn 9

$$\text{LCM of } 5^{\text{th}} \text{ and } 8^{\text{th}} = 40$$

Qn 10

$$\begin{array}{r} 2 \\ 2 \\ 3 \\ 5 \\ 1 \\ \hline 1 & 1 \end{array} \quad \begin{array}{l} \text{LCM of } 4, 6 \text{ and } 5 \\ = 2 \times 2 \times 3 \times 5 = 60 \\ \text{Minimum number of books = 60} \end{array}$$

Unit 1.7 – More Than/Less Than (External Unchanged Type 1)

Qn 1

$$\begin{array}{r} \text{Janice} \xleftarrow{\text{3u}} \text{Rebecca} \end{array}$$

$$\begin{array}{r} \text{Janice} \xleftarrow{\text{3u}} \text{Rebecca} \\ \text{1U} \quad 14 \end{array}$$

$$\begin{array}{l} 2U = 32 + 14 \\ = 46 \\ 1U = 23 \\ \text{Number of sweets Janice had at first} = 23 \times 3 \\ = 69 \\ \text{Janice had } 69 \text{ sweets at first.} \end{array}$$

Qn 2

Dennis	30	120
Jean		

$$2u = 30 \quad 1u = 15$$

Number of marbles Dennis had at first = $15 + 150 = 165$

Dennis had 165 marbles at first.

Qn 3

Mr Tan		5u
Mr Krishnan	1u	\$340

$$4u = \$800 + \$340$$

$$= \$1140$$

$$1u = \$285$$

Mr Tan at first = $5u$
 $= 5 \times \$285$
 $= \$1425$

Qn 4

Joshua		3u
Melvin	15	

$$2u = 15 + 45$$

$$= 60$$

$$1u = 30$$

Number of stickers Joshua had at first = $3u = 3 \times 30 = 90$

Qn 5

Mrs Lim	1u	120	60
Mrs Tan			

Qn 6

$$1U = 120$$

Number of cookies Mrs Lim baked at first = $1U + 180 = 120 + 180 = 300$

John	\$75	\$30	\$45
Melvin			

$$\begin{array}{l} 2u = \$30 \\ 1u = \$15 \\ \text{John at first} = \$15 + \$75 \\ = \$90 \end{array}$$

Unit 1.8 – More Than/Tess than (External Unchanged Type 2)

Qn 1

Before

Boys		
Girls		

After

Boys	1u	8	1u	8
Girl	1u	8		

$$2u = 1u + 8 + 8 \\ 1u = 8 + 8 \\ = 16$$

Number of boys at the party = $16 \times 3 = 48$

Qn 2

Before

Aaron		
Henry		

After

Aaron	1u	15	1u	15
Henry	1u	15		

$$3u = 1u + 15 + 15 \\ 2u = 15 + 15 \\ = 30 \\ 1u = 15$$

Number of stickers Aaron had = $4u = 4 \times 15 = 60$

Qn 3

Before

Calvin			
Mike			

After

Calvin	1u	12	1u	12	1u	12
Mike	1u	12				

$$6u = 2u + 12 + 12 + 12 \\ 4u = 12 + 12 + 12 \\ = 36$$

$$1u = 9$$

Number of sweets Calvin had = $7u = 7 \times 9 = 63$

Qn 4

Swimmers			
Non-swimmers	40		

$$2u = 120 \\ 1u = 60$$

Number of swimmers at the carnival = $5u = 5 \times 60 = 300$

Unit 1.9 – More Than/Less Than (External Unchanged Type 3)

Qn 1

Chickens		200
Ducks		

$$5u = 200 \\ 1u = 40$$

Chickens at first = $6u = 6 \times 40 = 240$

Qn 2

Mary		80
Linda		

$$5u = 80 \\ 1u = 16$$

Number of cookies Mary baked at first = $6u = 6 \times 16 = 96$

Qn 3

Mdm Wong		30
Mdm Lee		

$$2u = 30 \\ 1u = 15$$

Number of egg tarts Mdm Wong had at first = $3u = 3 \times 15 = 45$

Qn 4

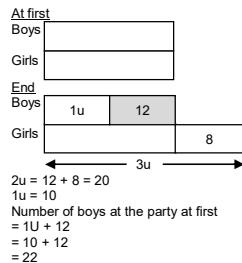
Men		45
Women		

$$5u = 45 \\ 1u = 9$$

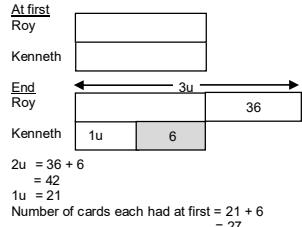
Number of men at the party at first = $6u = 6 \times 9 = 54$

Unit 1.10 – Equal Stage Type 1 (Beginning)

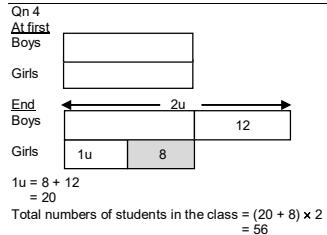
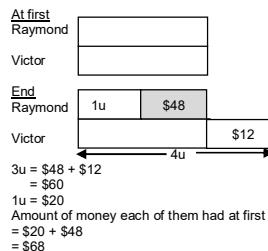
Qn 1



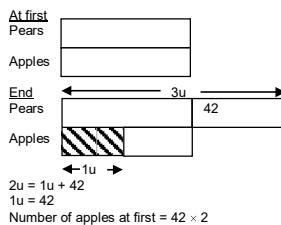
Qn 2



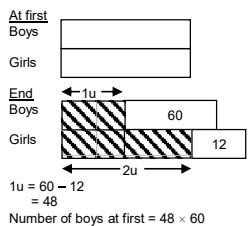
Qn 3



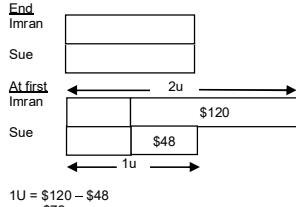
Qn 5



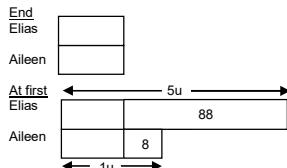
Qn 6

**Unit 1.11 – Equal Stage Type 2 (End)**

Qn1



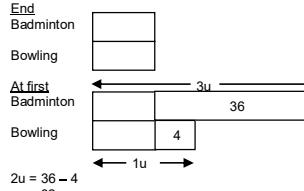
Qn 2



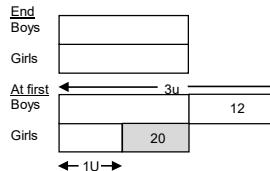
Qn 2 (Cont.)

$$\begin{aligned} 4u &= 88 - 8 \\ &= 80 \\ 1u &= 20 \\ \text{Number of stickers each had in the end} &= 20 - 8 \\ &= 12 \end{aligned}$$

Qn 3

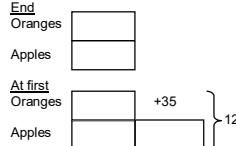


Qn 4



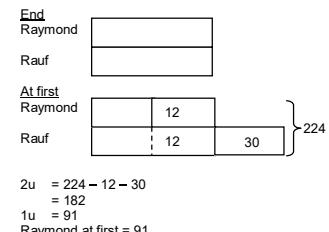
$$\begin{aligned} 2u &= 20 + 12 \\ &= 32 \\ 1u &= 16 \\ \text{Number of boys at first} &= 16 \times 3 \\ &= 48 \end{aligned}$$

Qn 5

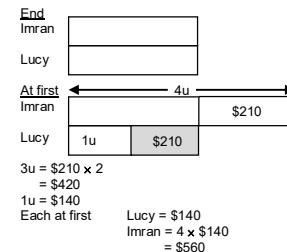


$$\begin{aligned} 3u &= 125 - 35 \\ &= 90 \\ 1u &= 30 \\ \text{Number of oranges at first} &= 30 + 35 \\ &= 65 \end{aligned}$$

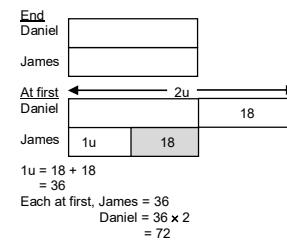
Qn 6

**Unit 1.12 – Equal Stage Type 3 (Internal Transfer)**

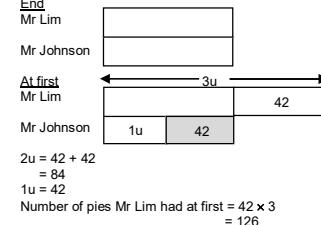
Qn 1



Qn 2



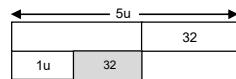
Qn 3



Qn 4

End

David



$$4u = 32 + 32 \\ = 64$$

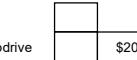
$$1u = 16$$

Each at first, Serene = \$16
David = $5 \times \$16$
= \$80

Unit 1.13 – Multiple Quantities (More than/Less than)

Qn 1

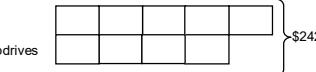
1 CD



1 thumbdrive



5 CDs



$$9u + \$80 = \$242$$

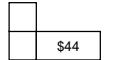
$$9u = \$162$$

$$1u = \$18$$

Cost of 1 CD is **\$18**.

Qn 2

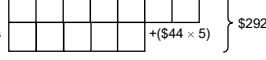
1 bulb



1 lamp



7 bulbs



$$12u + \$220 = \$292$$

$$12u = \$72$$

$$1u = \$6$$

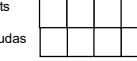
A lamp costs = $\$44 + \6
= **\$50**

Qn 3

1 T-shirt



3 T-shirts



4 Bermudas



$$7u + \$72 = \$170$$

$$7u = \$98$$

$$1u = \$14$$

Cost fo 1 Bermudas = $\$14 + \18
= **\$32**

Qn 4

1 plate



1 cup



$$\begin{aligned} 6 \text{ plates} &= 12u \\ 8 \text{ cups} &= 8u \\ 20u &= \$120 \\ 1u &= \$6 \\ 12 \text{ plates costs} &= \$6 \times 2 \times 12 \\ &= \$144 \end{aligned}$$

Qn 5

1 crate



1 carton



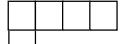
$$\begin{aligned} 5 \text{ cartons} &= 5u \\ 7 \text{ crates} &= 21u \end{aligned} \left\} 130 \text{ kg}$$

$$\begin{aligned} 26u &= 130 \text{ kg} \\ 1u &= 130 \div 26 \\ &= 5 \text{ kg} \end{aligned}$$

Mass of 1 carton = 5 kg

Qn 6

1 pillow



1 bolster



$$\begin{aligned} 3 \text{ pillows} &= 12u \\ 8 \text{ bolsters} &= 8u \end{aligned} \left\} \$360$$

$$\begin{aligned} 20u &= \$360 \\ 1u &= \$360 \div 20 \\ &= 18 \end{aligned}$$

$$\begin{aligned} \text{Cost of 1 pillow} &= \$18 \times 4 \\ &= \$72 \end{aligned}$$

Qn 7

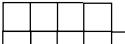
1 bat



1 racket



4 bats



$$\begin{aligned} 7 \text{ rackets} &= (\$22 \times 7) \\ &= \$154 \end{aligned} \left\} \$286$$

$$11u + \$154 = \$286$$

$$11u = \$132$$

$$1u = \$12$$

1 racket costs = $\$12 + \$22 = \$34$

Qn 8

1 CD



1 shirt



1 Bermuda



$$\begin{aligned} 3u + \$28 &= \$76 \\ 3u &= \$48 \\ 1u &= \$16 \\ \text{1 T-shirt costs} &= \$16 + \$8 \\ &= \$24 \end{aligned} \left\} \$76$$

Qn 9

2 cups



1 plate



1 bowl



$$\left. \begin{array}{l} \\ \\ \end{array} \right\} \$18$$

$$\begin{aligned} 6 \text{ plates} &= 12u \\ 8 \text{ cups} &= 8u \\ 20u &= \$120 \\ 1u &= \$6 \\ 12 \text{ plates costs} &= \$6 \times 2 \times 12 \\ &= \$144 \end{aligned}$$

$$4u + \$8 = \$18$$

$$4u = \$10$$

$$1u = \$2.50$$

$$12 \text{ cups} = 12 \times \$2.50$$

$$= \$30$$

Qn 6

$$\text{Number} \times \text{Value} = \text{Total}$$

$$\text{Correct Qn } 5u \times 3 \text{ points} = 15u$$

$$\text{Wrong Qn } 1u \times -2 \text{ points} = -2u$$

$$\text{Difference } 13u$$

$$13u = 104$$

$$1u = 104 \div 13$$

$$= 8$$

Number of questions answered correctly

$$= 5u$$

$$= 5 \times 8$$

$$= 40$$

Unit 1.14 – Number of Units and Value of Units

Qn 1

$$\text{No.} \times \text{Value} = \text{Total cost}$$

$$\begin{array}{llll} \text{Plates} & 4u & \times & \$7 \\ & 1u & \times & \$4 \end{array} \left\} \begin{array}{l} 28u \\ 4u \end{array} \right.$$

$$32u = \$160$$

$$1u = \$160 \div 32$$

$$= 5$$

$$\begin{array}{l} \text{Total number of plates} = 4u \\ = 4 \times 5 \\ = 20 \end{array}$$

Qn 2

$$\text{No.} \times \text{Value} = \text{Total cost}$$

$$\begin{array}{llll} \text{Horses} & 3u & \times & \$12 \\ \text{Chickens} & 1u & \times & \$2 \end{array} \left\} \begin{array}{l} 12u \\ 2u \end{array} \right.$$

$$14u = \$168$$

$$1u = \$168 \div 14$$

$$= 12$$

$$\begin{array}{l} \text{Total number of chickens} = 1u \\ = 12 \end{array}$$

Qn 3

$$\text{No.} \times \text{Value} = \text{Total cost}$$

$$\begin{array}{llll} \text{Welders} & 4u & \times & \$35 \\ \text{Painters} & 1u & \times & \$20 \end{array} \left\} \begin{array}{l} 140u \\ 20u \end{array} \right.$$

$$160u = \$1280$$

$$1u = \$1280 \div 160$$

$$= 8$$

$$\begin{array}{l} \text{Total number of welders employed} = 4u \\ = 4 \times 8 \\ = 32 \end{array}$$

Qn 4

$$\text{No.} \times \text{Value} = \text{Total balloons}$$

$$\begin{array}{llll} \text{Girls} & 5u & \times & \$5 \\ \text{Boys} & 1u & \times & \$4 \end{array} \left\} \begin{array}{l} 25u \\ 4u \end{array} \right.$$

$$29u = \$174$$

$$1u = \$174 \div 29$$

$$= 6$$

$$\text{Number of girls} = 5u$$

$$= 5 \times 6$$

$$= 30$$

Qn 5

$$\text{Number} \times \text{Value} = \text{Total}$$

$$\begin{array}{llll} \text{Adults} & 1u & \times & \$8 \\ \text{Children} & 20u & \times & \$5 \end{array} \left\} \begin{array}{l} 8u \\ 100u \end{array} \right.$$

$$108u = 432$$

$$1u = 432 \div 108$$

$$= 4$$

$$\begin{array}{l} \text{Total number of children} = 20u \\ = 20 \times 4 \end{array}$$

$$= 80$$

Qn 1

$$\text{Imran} \quad \boxed{\begin{array}{|c|c|} \hline \end{array}}$$

$$\text{Daniel} \quad \boxed{\begin{array}{|c|c|c|} \hline \end{array}}$$

$$\text{Jessica} \quad \boxed{\begin{array}{|c|c|c|c|} \hline \end{array}} \left\} 143 \right.$$

$$11u = 143$$

$$1u = 143 \div 11$$

$$= 13$$

Number of stickers Imran has = 2u

$$= 2 \times 13$$

$$= 26$$

Qn 2

$$\text{Sam} \quad \boxed{\begin{array}{|c|c|c|} \hline \end{array}}$$

$$\text{Calvin} \quad \boxed{\begin{array}{|c|c|c|c|} \hline \end{array}}$$

$$\text{Krishnan} \quad \boxed{\begin{array}{|c|c|c|c|} \hline \end{array}} \left\} \$2100 \right.$$

$$6u = \$2100$$

$$1u = \$2100 \div 6$$

$$= \$350$$

Amount of money that Sam had = 3u

$$= 3 \times \$350$$

$$= \$1050$$

Qn 3

$$\text{Blue} \quad \boxed{\begin{array}{|c|c|c|c|} \hline \end{array}}$$

$$\text{Red} \quad \boxed{\begin{array}{|c|c|c|} \hline \end{array}}$$

$$\text{Green} \quad \boxed{\begin{array}{|c|c|c|} \hline \end{array}} \left\} 135 \right.$$

$$9u = 135$$

$$1u = 135 \div 9$$

$$= 15$$

Number of red balls in the bag = 15

Qn 4

$$\text{Michelle} \quad \boxed{\begin{array}{|c|c|c|} \hline \end{array}}$$

$$\text{Chris} \quad \boxed{\begin{array}{|c|c|c|} \hline \end{array}}$$

$$\text{Rebecca} \quad \boxed{\begin{array}{|c|c|c|} \hline \end{array}} \leftarrow 8 \rightarrow$$

$$2u = 8$$

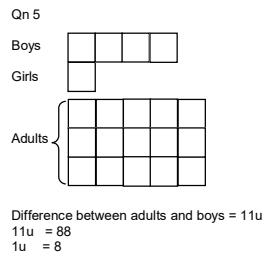
$$1u = 8 \div 2$$

$$= 4$$

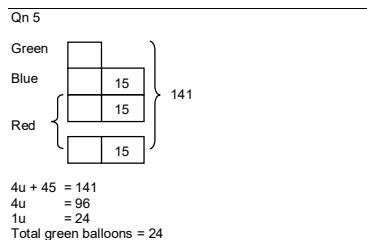
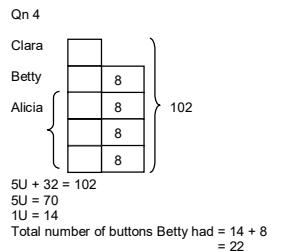
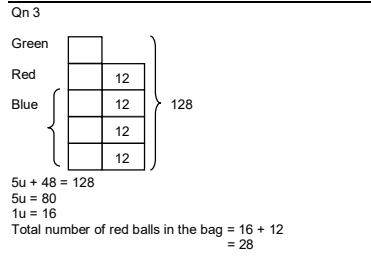
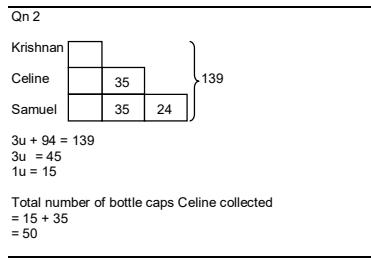
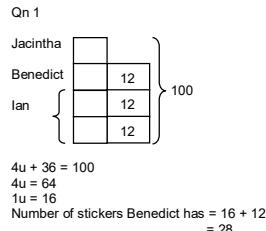
Total dolls collected = 7u

$$= 7 \times 4$$

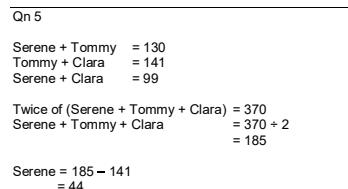
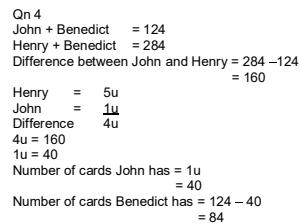
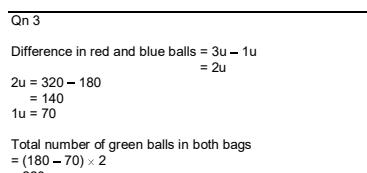
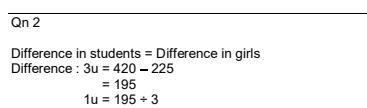
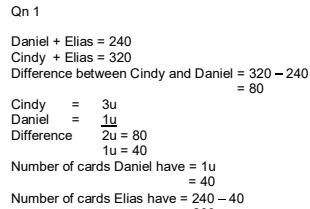
$$= 28$$



Unit 1.16 – Repeated Identity (Type 2)



Unit 1.17 – Repeated Identity (Type 3)



Chapter 2 Fraction

Unit 2.1 – Addition & Subtraction of Fractions (Type 1)

Qn 1

$$(a) 1 - \frac{5}{12} - \frac{1}{12} = \frac{6}{12}$$

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

He gave $\frac{1}{2}$ of his sweets in all.

(b) He had $\frac{1}{2}$ of his sweets left.

Qn 2

$$1 - \frac{3}{11} - \frac{4}{11} = \frac{4}{11}$$

$\frac{4}{11}$ pole = 20 cm

$\frac{1}{11}$ pole = 5 cm

(a) $\frac{4}{11}$ of the pole was painted green.

(b) Length of the pole = $11 \times 5 = 55$ cm

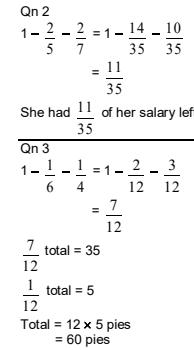
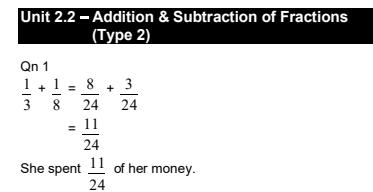
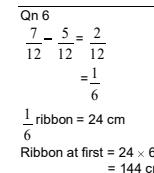
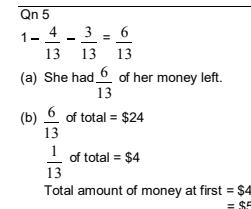
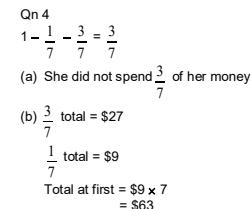
Qn 3

$$(a) 1 - \frac{2}{9} - \frac{4}{9} = \frac{3}{9}$$

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

$\frac{1}{3}$ of the class likes soccer.

(b) Total students in the class = $12 \times 3 = 36$



Qn 4

$$1 - \frac{1}{4} - \frac{3}{8} = 1 - \frac{2}{8} - \frac{3}{8}$$

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

$\frac{3}{8}$ strings = 90 cm

$\frac{1}{8}$ string = 30 cm

$$\text{Original length} = 30 \times 8$$

$$= 240 \text{ cm}$$

Qn 5

$$1 - \frac{1}{4} - \frac{2}{5} = 1 - \frac{5}{20} - \frac{8}{20}$$

$$= \frac{7}{20}$$

$\frac{7}{20}$ track = 1400 m

$\frac{1}{20}$ track = 200 m

$$\text{Entire track} = 200 \times 20$$

$$= 4000 \text{ m}$$

Qn 6

$$1 - \frac{1}{3} - \frac{3}{7} = 1 - \frac{7}{21} - \frac{9}{21}$$

$$= \frac{5}{21}$$

$\frac{5}{21}$ of total = 145

$\frac{1}{21}$ of total = 145 ÷ 5

= 29

$$\text{Total apples at first} = 29 \times 21$$

$$= 609$$

Unit 2.3 – Addition & Subtraction of Fractions (Type 3)

Qn 1

$$\text{Difference in mass} = \frac{1}{2} \text{ kg} - \frac{1}{3} \text{ kg}$$

$$= \frac{3}{6} \text{ kg} - \frac{2}{6} \text{ kg}$$

$$= \frac{1}{6} \text{ kg}$$

Qn 2

$$\text{Weight of pencil box} = \frac{8}{9} \text{ kg} - \frac{2}{3} \text{ kg}$$

$$= \frac{8}{9} \text{ kg} - \frac{6}{9} \text{ kg}$$

$$= \frac{2}{9} \text{ kg}$$

$$\text{Difference in mass} = \frac{2}{3} \text{ kg} - \frac{2}{9} \text{ kg}$$

$$= \frac{6}{9} \text{ kg} - \frac{2}{9} \text{ kg}$$

$$= \frac{4}{9} \text{ kg}$$

Qn 3

$$\text{Difference} = \frac{1}{3} - \frac{1}{5}$$

$$= \frac{5}{15} - \frac{3}{15}$$

$$= \frac{2}{15} \text{ cake}$$

$$\frac{2}{15} \text{ of cake} = 200 \text{ g}$$

$$\frac{1}{15} \text{ of cake} = 100 \text{ g}$$

$$\text{Total cake} = 15 \times 100 \text{ g}$$

$$= 1500 \text{ g}$$

Qn 4

$$\text{Mass of cup} = \frac{2}{3} \text{ kg} - \frac{2}{5} \text{ kg}$$

$$= \frac{10}{15} \text{ kg} - \frac{6}{15} \text{ kg}$$

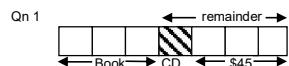
$$= \frac{4}{15} \text{ kg}$$

$$\text{Difference in mass} = \frac{2}{5} \text{ kg} - \frac{4}{15} \text{ kg}$$

$$= \frac{6}{15} \text{ kg} - \frac{4}{15} \text{ kg}$$

$$= \frac{2}{15} \text{ kg}$$

Unit 2.4 – Part-whole Relationship (Type 1)



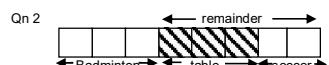
$$3u = \$45$$

$$1u = \$15$$

$$\text{Total amount of money at first} = 7u$$

$$= 7 \times \$15$$

$$= \$105$$

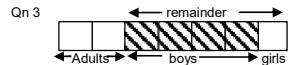


$$\text{Difference between badminton and soccer} = 6$$

$$\text{Total in class} = 8u$$

$$= 8 \times 6$$

$$= 48$$



$$\text{Difference between adults and girls} = 1u$$

$$= 80$$

$$\text{Total at the party} = 7u$$

$$= 7 \times 80$$

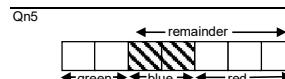
$$= 560$$



$$5u = \$1250$$

$$1u = \$250$$

$$\text{Total spent on DVD} = \$250$$



$$\text{Difference between basketball and table tennis} = 3u$$

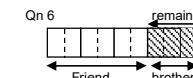
$$3u = 9$$

$$1u = 3$$

$$\text{Total in the class} = 16u$$

$$= 16 \times 3$$

$$= 48$$



$$\text{Difference between friend and brother} = 3u$$

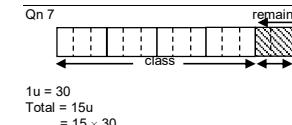
$$3u = 15$$

$$1u = 5$$

$$\text{Total cookies she baked at first} = 10u$$

$$= 5 \times 10$$

$$= 50$$

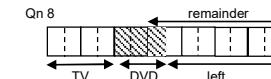


$$1u = 30$$

$$\text{Total} = 10u$$

$$= 15 \times 30$$

$$= 450$$



$$7u = \$630$$

$$1u = \$630 + 7$$

$$= \$90$$

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

$$= 14 \times \$90$$

$$= \$1260$$



$$\text{Total} = 9u$$

$$9u = 360$$

$$1u = 360 + 9$$

$$= 40$$

$$\text{Rest} = 3u$$

$$3u = 3 \times 40$$

$$= 120$$

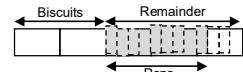
$$\text{Number of boxes} = 120 + 30$$

$$= 4$$

Unit 2.6 Part-whole Relationship (Type 3)

Note: u represents units and p represent parts.

Qn 1

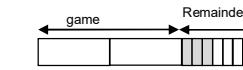


$$\begin{aligned} 3u \text{ of Total} &= 12p \\ 1u \text{ of Total} &= 4p \\ 5u \text{ of Total} &= 20p \\ (\text{a}) \text{ He spent } &\frac{9}{20} \text{ of his money on pens.} \\ \text{Money left} &= 12p - 9p \\ &= 3p \end{aligned}$$

$$\begin{aligned} 3p &= 6 \\ 1p &= 2 \\ 4p &= 8 \end{aligned}$$

$$\begin{aligned} 1u &= 8 \\ 5u &= 40 \\ (\text{b}) \text{ Max had } &\$40 \text{ at first.} \end{aligned}$$

Qn 2



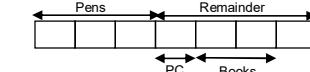
$$\begin{aligned} 1u \text{ of Total} &= 7p \\ 3u \text{ of Total} &= 21p \\ (\text{a}) \text{ She spent } &\frac{4}{21} \text{ of her money on the CD.} \end{aligned}$$

$$\begin{aligned} 4p &= 24 \\ 1p &= 6 \\ 7p &= 42 \end{aligned}$$

$$\begin{aligned} 1u &= 42 \\ 3u &= 126 \end{aligned}$$

(b) Daphne had \$126 at first.

Qn 3



$$\begin{aligned} (\text{a}) \text{ Fraction of money left} &= \frac{1}{7} \\ (\text{b}) \quad 1u &= \$12 \\ 7u &= 7 \times \$12 \\ &= \$84 \\ \text{Serene had } &\$84 \text{ at first.} \end{aligned}$$



$$\begin{aligned} 1u \text{ of Total} &= 7p \\ 2u \text{ of Total} &= 14p \end{aligned}$$

$$\begin{aligned} 4p &= 8 \text{ loaves of bread} \\ 1p &= 2 \text{ loaves of bread} \\ 7p &= 14 \text{ loaves of bread} \end{aligned}$$

Qn 4 (Cont.)

$$\begin{aligned} 1 \text{ loaf of bread} &= 3 \text{ pies} \\ 14 \text{ loaves of bread} &= 42 \text{ pies} \\ \text{Esther bought } &42 \text{ pies.} \end{aligned}$$

Qn 5



$$\begin{aligned} 5u \text{ of Total} &= 15p \\ 1u \text{ of Total} &= 3p \\ 7u \text{ of Total} &= 35p \\ 10p &= \$2200 \\ 1p &= \$220 \\ 35p &= \$7700 \\ \text{Mr Imran's salary was } &\$7700. \end{aligned}$$

Qn 6



$$\begin{aligned} 6u \text{ of Girls and } 3u \text{ of boys did not know how to swim.} \\ \text{Swimmers} &= 20u - 9u \\ &= 11u \\ 11u &= 154 \\ 1u &= 14 \\ 20u &= 280 \\ \text{There were } &280 \text{ students altogether at the event.} \end{aligned}$$

Unit 2.7 Comparison of Different Quantities

$$\begin{aligned} \text{Qn 1} \\ 1 \text{ box} &= 3u \\ 1 \text{ crate} &= 5u \end{aligned}$$

$$\begin{aligned} 2 \text{ boxes} &= 6u \\ 4 \text{ crates} &= 20u \} 130 \text{ kg} \\ \text{Total mass} &= 26u \\ 26u &= 130 \text{ kg} \\ 1u &= 150 \text{ kg} + 26 \\ &= 5 \text{ kg} \end{aligned}$$

$$\begin{aligned} \text{Mass of 1 box of onions} &= 3u \\ &= 3 \times 5 \text{ kg} \\ &= 15 \text{ kg} \end{aligned}$$

$$\begin{aligned} \text{Qn 2} \\ 1 \text{ wire} &= 1u \\ 1 \text{ ribbon} &= 3u \\ 6 \text{ wires} &= 6u \\ 3 \text{ ribbons} &= 9u \\ \text{Total} &= 15u \\ 15u &= 300 \text{ cm} \\ 1u &= 300 \text{ cm} + 15 \\ &= 20 \text{ cm} \\ \text{Length of a wire} &= 20 \text{ cm} \end{aligned}$$

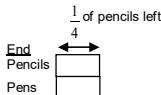
$$\begin{aligned} \text{Qn 3} \\ 1 \text{ girl} &= 1u \\ 1 \text{ boy} &= 4u \\ 8 \text{ girls} &= 8u \} 256 \\ 6 \text{ boys} &= 24u \\ \text{Total} &= 32u \\ 32u &= 256 \\ 1u &= 256 + 32 \\ &= 8 \\ \text{No. of sweets received by each girl} &= 8 \end{aligned}$$

Qn 4

$$\begin{aligned} 1 \text{ radio} &= 3u \\ 1 \text{ computer} &= 5u \\ 7 \text{ radios} &= 21u \} \$3280 \\ 4 \text{ computers} &= 20u \\ \text{Total} &= 41u \\ 41u &= \$3280 \\ 1u &= \$3280 + 41 \\ &= \$80 \\ \text{Cost of computer} &= 5 \times \$80 \\ &= \$400 \end{aligned}$$

Unit 2.8 – Equal Stage (Type 1)

Qn 1

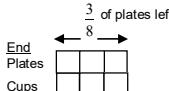


$$\begin{aligned} \text{At first} \\ \text{Boys} &= 5 \\ \text{Girls} &= 15 \\ \text{End} \\ \text{Boys} &= 5 \\ \text{Girls} &= 15 \\ 5u + 15 &= 100 \\ 5u &= 85 \\ 1u &= 17 \\ \text{Total pens at first} &= 17 + 15 \\ &= 32 \end{aligned}$$

$$\begin{aligned} \text{Qn 2} \\ \text{End} &= \frac{2}{5} \text{ of boys left behind} \\ \text{Boys} &= 5 \\ \text{Girls} &= 15 \end{aligned}$$

$$\begin{aligned} \text{At first} \\ \text{Boys} &= 5 \\ \text{Girls} &= 15 \\ \text{Boys} &= 5 \\ \text{Girls} &= 15 + 70 \} 280 \\ 7u + 70 &= 280 \\ 7u &= 210 \\ 1u &= 30 \\ \text{Total boys at first} &= 5u \\ &= 5 \times 30 \\ &= 150 \end{aligned}$$

Qn 3



$$\begin{aligned} \text{At first} \\ \text{Plates} &= 5 \\ \text{Cups} &= 12 \\ \text{Plates} &= 5 \\ \text{Cups} &= 12 + 12 \} 100 \\ 11u + 12 &= 100 \\ 11u &= 88 \\ 1u &= 8 \\ \text{Total cups at shop at first} &= 3u + 12 \\ &= 3 \times 8 + 12 \\ &= 36 \end{aligned}$$

Qn 4

$$\begin{aligned} \text{End} \\ \text{Green} &= 5 \\ \text{Blue} &= 3 \\ \text{At first} \\ \text{Green} &= 5 \\ \text{Blue} &= 3 \\ 8u + 28 &= 140 \\ 8u &= 140 - 28 \\ &= 112 \\ 1u &= 14 \\ \text{Total blue balls at first} &= 5u \\ &= 5 \times 14 \\ &= 70 \end{aligned}$$

Qn 5

$$\begin{aligned} \text{At first} \\ \text{Boys} &= 10 \\ \text{Girls} &= 10 \\ \text{End} \\ \text{Boys} &= 10 \\ \text{Girls} &= 10 \\ 3u + 12 &= 12 \\ &= 30 \\ 1u &= 10 \\ \text{Total number of students at first} &= 10u \\ &= 10 \times 10 \\ &= 100 \end{aligned}$$

Qn 6

$$\begin{aligned} \text{At first} \\ \text{Banana} &= 10 \\ \text{Chocolate} &= 10 \\ \text{End} \\ \text{Banana} &= 10 \\ \text{Chocolate} &= 10 \\ 2u = 45 + 15 &= 60 \\ 1u &= 30 \\ \text{Total number of muffins at first} &= 14u \\ &= 14 \times 30 \\ &= 420 \end{aligned}$$

Unit 2.9 – Equal Stage (Type 2)

Qn 1

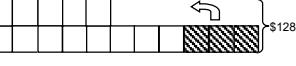
$$\begin{aligned} \text{Daniel} &= 2u \\ \text{Gerald} &= 2u \\ \text{At first} \\ \text{Daniel} &= 2u \\ \text{Gerald} &= 2u \\ 10u &= 280 \\ 1u &= 28 \\ \text{Number of sweets Gerald must give Daniel} &= 2u \\ &= 2 \times 28 \\ &= 56 \end{aligned}$$

Qn 2

Tan 

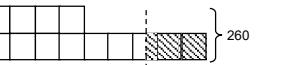
$8u = 112$
 $1u = 14$
Number of cookies Mrs Krishnan must give Mrs Tan
 $= 3u$
 $= 3 \times 14$
 $= 42$

Qn 3

Joseph 

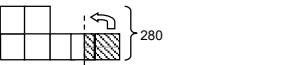
$16u = \$128$
 $1u = \$8$
Aaron must give to Joseph = $3u$
 $= 3 \times \$8$
 $= \$24$

Qn 4

Clara 

$13u = 260$
 $1u = 20$
Number of pebbles Judy must give to Clara
 $= 2\frac{1}{2}u$
 $= 2\frac{1}{2} \times 20$
 $= \frac{5}{2} \times 20$
 $= 50$

Qn 5

David 

$7u = 280$
 $1u = 40$
Number of books Raymond must give David
 $= 1\frac{1}{2}u$
 $= 1\frac{1}{2} \times 40$
 $= \frac{3}{2} \times 40$
 $= 60$

Unit 2.10 – Equal Stage (Type 3)

Qn 1

$\frac{3}{4}$ of Chelsia = $\frac{2}{3}$ of Benson

$\frac{6}{8}$ of Chelsia = $\frac{6}{9}$ of Benson

Chelsia = 8u
Benson = 9u
Difference = 1u

Qn 1 (Cont.)

$1u = \$18$
Total sum of Chelsia + Benson = $17u$
 $= 17 \times \$18$
 $= \$306$

Qn 2

$\frac{4}{7}$ of girls = $\frac{2}{3}$ of boys

$\frac{4}{7}$ of girls = $\frac{4}{6}$ of boys

Girls = 7u
Boys = 6u
Total = 13u
 $13u = 78$
 $1u = 6$
Total girls = $7u$
 $= 7 \times 6$
 $= 42$

Qn 3

$\frac{3}{5}$ of pencils = $\frac{2}{5}$ of pens

$\frac{6}{10}$ of pencils = $\frac{6}{15}$ of pens

Pencils = 10u
Pens = 15u
Total = $10u + 15u$
 $= 25u$
 $25u = 75$
 $1u = 3$
Pencils = $10u$
 $= 10 \times 3$
 $= 30$

Qn 4

$\frac{3}{4}$ of men = $\frac{1}{7}$ of women

$\frac{3}{4}$ of men = $\frac{3}{21}$ of women

Men = 4u
Women = 21u
Total = $4u + 21u$
 $= 25u$
 $25u = 225$
 $1u = 9$
Total men = $4u$
 $= 4 \times 9$
 $= 36$

Qn 5

$\frac{3}{4}$ boys = $\frac{2}{3}$ girls

$\frac{6}{8}$ boys = $\frac{6}{9}$ girls

Boys = 8u
Girls = 9u
Total = 17u
 $17u = 510$
 $1u = 30$
Difference between boys and girls = $1u = 30$

Qn 6

$\frac{2}{5}$ of blue = $\frac{3}{5}$ of red

$\frac{6}{15}$ of blue = $\frac{6}{10}$ of red

Blue = 15u
Red = 10u
Total = $15u + 10u$
 $= 25u$
 $25u = 125$
 $1u = 5$
Difference between blue and red = $5u$
 $= 5 \times 5$
 $= 25$

Qn 7

$\frac{3}{4}$ of English = $\frac{2}{7}$ of Chinese

$\frac{6}{8}$ of English = $\frac{6}{21}$ of Chinese

English = 8u
Chinese = 21u
Total = $8u + 21u$
 $= 29u$
 $29u = 435$
 $1u = 15$
English total = $8u$
 $= 8 \times 15$
 $= 120$

Qn 8

$\frac{3}{8}$ of oranges = $\frac{2}{5}$ of apples

$\frac{6}{16}$ of oranges = $\frac{6}{15}$ of apples

Oranges = 16u
Apples = 15u
Total = $16u + 15u$
 $= 31u$
 $31u = 620$
 $1u = 20$
Apples = $15u$
 $= 15 \times 20$
 $= 300$

Qn 9

$\frac{1}{4}$ Esther = $\frac{3}{7}$ Kevin

$\frac{3}{12}$ Esther = $\frac{3}{7}$ Kevin

Esther = 12u
Kevin = 7u
Difference = 5u
 $5u = \$350$
 $1u = \$70$
Kevin = $7u$
 $= 7 \times \$70$
 $= \$490$

Qn 10

$\frac{2}{5}$ boys = $\frac{3}{8}$ girls

$\frac{6}{15}$ boys = $\frac{6}{16}$ girls

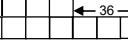
Qn 10 (Cont.)

Boys = 15u
Girls = 16u
Difference = 1u
 $1u = 30$
Boys at first = $15u$
 $= 15 \times 30$
 $= 450$

Unit 2.11 – External Unchanged (Type 1)

Qn 1

At first

Square 

Oval 

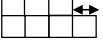
$3u = 36$
 $1u = 12$
Number of square-shaped cookies = $4u$
 $= 4 \times 12$
 $= 48$
Number of oval-shaped cookies = $7u$
 $= 7 \times 12$
 $= 84$

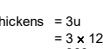
End

Oval = 3u
Square = 1u
Since the number of oval-shaped cookies remained the same;
 $3u = 84$
 $1u = 28$
Number of square-shaped cookies in the end = $1u$
 $= 28$
Number of square-shaped cookies removed = $48 - 28$
 $= 20$

Qn 2

At first

Chickens 

Ducks 

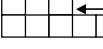
$1u = 120$
Number of chickens = $3u$
 $= 3 \times 120$
 $= 360$
Number of ducks = $4u$
 $= 4 \times 120$
 $= 480$

End

Ducks = 4u
Chickens = 1u
Since the number of ducks remained the same;
 $4u = 480$
 $1u = 120$
Number of chickens in the end = $1u$
 $= 120$
Number of chickens sold = $360 - 120$
 $= 240$

Qn 3

At first

Plates 

Cups 

$2u = 80$
 $1u = 40$

Qn 3 (Cont.)

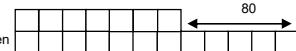
$$\begin{aligned}\text{Number of plates} &= 3u \\ &= 3 \times 40 \\ &= 120 \\ \text{Number of cups} &= 5u \\ &= 5 \times 40 \\ &= 200\end{aligned}$$

End

$$\begin{aligned}\text{Plates} &= 2u \\ \text{Cups} &= 1u \\ \text{Since the number of plates remained the same;} \\ 2u &= 120 \\ 1u &= 60 \\ \text{Number of cups in then end} &= 1u \\ &= 60 \\ \text{Number of cups sold} &= 200 - 60 \\ &= 140\end{aligned}$$

Qn 4

At first



$$5u = 80$$

$$1u = 16$$

$$\text{Men} = 16 \times 7$$

$$= 112$$

$$\text{Women} = 12 \times 16$$

$$= 192$$

End

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

$$\text{Women} = 3u$$

Since women remain the same,

$$3u = 192$$

$$1u = 64$$

$$\text{Number of men who left halfway} = 112 - 64$$

$$= 48$$

Unit 2.12 – External Unchanged (Type 2)

Qn 1

At first

$$\text{Orange} = 3u$$

$$\text{Water} = 7u$$

End

$$\text{Orange} = 1u \times 3$$

$$= 3u$$

$$\text{Water} = 4u \times 3$$

$$= 12u$$

$$\text{Increase in water used} = 12u - 7u$$

$$= 5u$$

$$5u = 1100 \text{ ml}$$

$$1u = 220 \text{ ml}$$

$$\text{Amount of syrup used} = 3u$$

$$= 3 \times 220 \text{ ml}$$

$$= 660 \text{ ml}$$

Qn 2

At first

$$\text{Children} = 3u \times 4$$

$$= 12u$$

$$\text{Adults} = 4u \times 4$$

$$= 16u$$

Qn 2 (Cont.)

End

$$\begin{aligned}\text{Children} &= 4u \times 3 \\ &= 12u \\ \text{Adults} &= 5u \times 3 \\ &= 15u\end{aligned}$$

$$\text{Decrease in adults} = 1u$$

$$1u = 2$$

$$\begin{aligned}\text{Number of children in the bus} &= 12u \\ &= 12 \times 2 \\ &= 24\end{aligned}$$

Qn 3

At first

$$\text{Boys} = 4u \times 3$$

$$= 12u$$

$$\text{Girls} = 3u \times 3$$

$$= 9u$$

End

$$\text{Boys} = 3u \times 4$$

$$= 12u$$

$$\text{Girls} = 5u \times 4$$

$$= 20u$$

$$\text{Increase in girls} = 20u - 9u$$

$$= 11u$$

$$11u = 22$$

$$1u = 2$$

$$\begin{aligned}\text{Number of students in the end} &= 32u \\ &= 32 \times 2 \\ &= 64\end{aligned}$$

Qn 4

At first

$$\text{Oranges} = 1u \times 3$$

$$= 3u$$

$$\text{Pears} = 2u \times 3$$

$$= 6u$$

End (conditional)

$$\text{Oranges} = 3u$$

$$\text{Pears} = 2u$$

$$\text{Decrease in pears} = 6u - 2u$$

$$= 4u$$

$$4u = 20$$

$$1u = 5$$

$$\text{Total} = 9u$$

$$= 9 \times 5$$

$$= 45$$

Qn 5

At first

$$\text{Red} = 1u \times 5$$

$$= 5u$$

$$\text{Blue} = 3u \times 5$$

$$= 15u$$

End

$$\text{Red} = 2u \times 3$$

$$= 6u$$

$$\text{Blue} = 5u \times 3$$

$$= 15u$$

$$\text{Increase in red} = 6u - 5u$$

$$= 1u$$

$$2u = 12$$

$$\text{Total} = 20u$$

$$= 20 \times 12$$

$$= 240$$

Unit 2.13 – Repeated Identity

Qn 1

$$\begin{aligned}\text{Banana} &= 1u \times 2 \\ &= 2u \\ \text{Chocolate} &= 5u \times 2 \\ &= 10u \\ \text{Banana} &= 2u \\ \text{Blueberry} &= 3u \\ &\left. \begin{array}{l} \text{Banana} = 2u \\ \text{Chocolate} = 10u \\ \text{Blueberry} = 3u \end{array} \right\} 15u\end{aligned}$$

Qn 2

$$\begin{aligned}\text{Banana} &= 1u \times 4 \\ &= 4u \\ \text{Melvin} &= 7u \times 4 \\ &= 28u \\ \text{Melvin} &= 4u \times 7 \\ &= 28u \\ \text{Esther} &= 5u \times 7 \\ &= 35u \\ &\left. \begin{array}{l} \text{Serene} = 16u \\ \text{Melvin} = 28u \\ \text{Esther} = 35u \end{array} \right\} 79u \\ \text{Difference between Serene and Esther} &= 35u - 16u \\ &= 19u \\ 19u &= 38 \\ 1u &= 2 \\ \text{Total number of chocolate} &= 16u + 28u + 35u \\ &= 79u \\ &= 79 \times 2 \\ &= 158\end{aligned}$$

Qn 3

$$\begin{aligned}\text{Boys} &= 1u \times 5 \\ &= 5u \\ \text{Girls} &= 3u \times 5 \\ &= 15u \\ \text{Adults} &= 2u \times 4 \\ &= 8u \\ \text{Children} &= 5u \times 4 \\ &= 20u \\ &\left. \begin{array}{l} \text{Boys} = 5u \\ \text{Girls} = 15u \\ \text{Adults} = 8u \\ \text{Children} = 20u \end{array} \right\} 53u\end{aligned}$$

$$\begin{aligned}\text{Difference between adults and boys} &= 8u - 5u \\ &= 3u \\ 3u &= 24 \\ 1u &= 8 \\ \text{Total number of people} &= 28u \\ &= 28 \times 8 \\ &= 224\end{aligned}$$

Qn 4

$$\begin{aligned}\text{Red} &= 3u \times 3 \\ &= 9u \\ \text{Blue} &= 5u \times 3 \\ &= 15u \\ \text{Green} &= 2u \times 5 \\ &= 10u \\ \text{Blue} &= 3u \times 5 \\ &= 15u \\ &\left. \begin{array}{l} \text{Red} = 9u \\ \text{Blue} = 15u \\ \text{Green} = 10u \\ \text{Blue} = 15u \end{array} \right\} 59u\end{aligned}$$

$$\begin{aligned}\text{Difference between green and red balls} &= 10u - 9u \\ &= 1u \\ 1u &= 8 \\ \text{Total number of balls} &= 9u + 15u + 10u \\ &= 34u \\ &= 34 \times 8 \\ &= 272\end{aligned}$$

Chapter 3 Angles

Unit 3.1 – Naming Angles (Basic)

Qn 1

Qn 2

Qn 3

Qn 4

Qn 5

Qn 6

Qn 7

Unit 3.2 – Measuring Angles (Basic)

Qn 1

Qn 2

Qn 3

Qn 4

Qn 5

Qn 6

Qn 7

Qn 8

Qn 9

Qn 10

Qn 11

Qn 12

Qn 13

Qn 14

Qn 15

Qn 16

Qn 17

Qn 18

Qn 19

Qn 20

Qn 21

Qn 22

Qn 23

Qn 24

Qn 25

Qn 26

Qn 27

Qn 28

Qn 29

Qn 30

Qn 31

Qn 32

Qn 33

Qn 34

Qn 35

Qn 36

Qn 37

Qn 38

Qn 39

Qn 40

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Qn 88

Qn 89

Qn 90

Qn 91

Qn 92

Qn 93

Qn 94

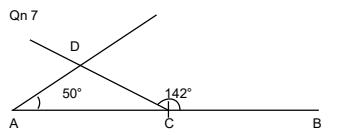
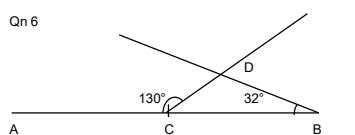
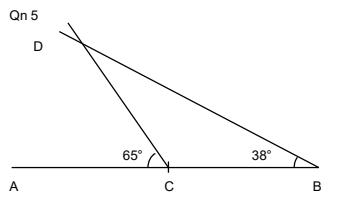
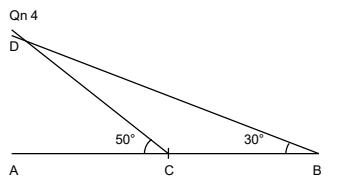
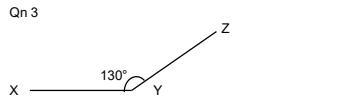
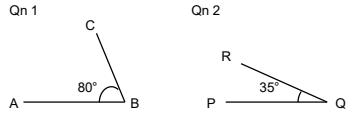
Qn 95

Qn 96

Qn 6
 $\angle w = 80^\circ$ $\angle x = 140^\circ$ $\angle y = 26^\circ$ $\angle z = 68^\circ$

Qn 7
 $\angle a = 317^\circ$ $\angle b = 128^\circ$ $\angle c = 130^\circ$ $\angle d = 67^\circ$

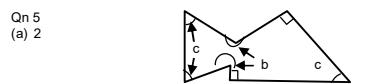
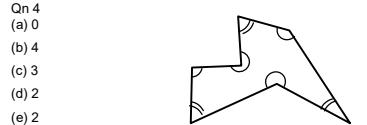
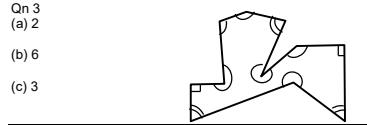
Unit 3.3 – Constructing Angles (Basics)



Unit 3.4 – Fraction of Right Angles

- Qn 1
(a) $\frac{1}{2}$ -turn = 180° (b) $\frac{1}{4}$ -turn = 90°
(c) $1\frac{3}{4}$ -turn = 630° (d) 2-turns = 720°

- Qn 2
There are 4 angles.



Unit 3.5 – 8 Point Compass

Qn 1

If Mary faces	She makes a	She will face
East	$\frac{1}{2}$ -turn to her right/left	West
South	$\frac{1}{2}$ -turn to her right	North
North-east	$\frac{1}{4}$ -turn to her right	South-east
South	$\frac{3}{4}$ -turn to her left	West
South-west	$\frac{3}{4}$ -turn to her left	North-west
South-east	2-turns to her right	South-east

Qn 2

If Jacintha faces	She makes a	She will face
North	$\frac{3}{4}$ -turn to her right	West
South-west	$\frac{1}{2}$ -turn to her left	North-east
North-east	$\frac{1}{4}$ -turn to her right	South-east
North-west	$\frac{3}{4}$ -turn to her left	North-east
South-east	$\frac{3}{4}$ -turn to her left	South-west
North-east	$\frac{1}{4}$ -turn to her right	South-east

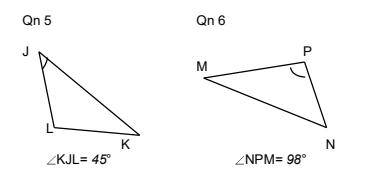
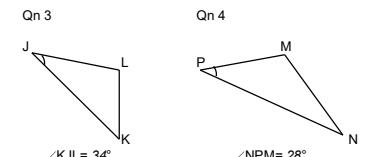
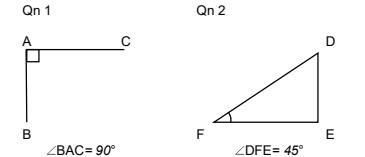
Qn 3

If Michael faces the	He makes a	He will face the
MRT Station	$\frac{1}{2}$ -turn to his left	Bus stop
Food centre	$\frac{1}{4}$ -turn to his left	Library
Swimming pool	$\frac{1}{4}$ -turn to his left	Food centre
Bus stop	$\frac{3}{4}$ -turn to his left	Stadium
Food centre	$\frac{1}{4}$ -turn to his right	Swimming pool
Stadium	$\frac{1}{2}$ -turn to his right/left	Community centre
MRT Station	$\frac{1}{4}$ -turn to his left OR $\frac{3}{4}$ -turn to the right	Stadium

Qn 6

If Ryan faces the	He makes a	He will face the
Furniture Shop (West)	270° clockwise turn	Airport (South)
East	180° clockwise turn	Furniture Shop (West)
Airport	270° clockwise turn	Jewellery Shop (East)
Supermarket	90° clockwise turn	Cake Shop (North-east)
Cinema (South-east)	90° clockwise turn	Swimming pool
Airport	135° clockwise turn	Supermarket

Unit 3.6 – Constructing Angles (Intermediate)



Chapter 4 Decimals

unit 4.1 – Identifying Decimal Places

- Qn 1
- (a) tenths
 - (b) hundredths
 - (c) thousandths
 - (d) ones
 - (e) hundredths
 - (f) thousandths
 - (g) tenths
 - (h) thousandths

- Qn 2
 (a) 0.007 / 7 thousandths (b) 0.04 / 4 hundredths
 (c) 0.3 / 3 tenths (d) 0.006 / 6 thousandths

- Qn 3
 (a) $5 + 0.6 + 0.03 + 0.004 = 5.634$
 (b) $120 + 0.6 + 0.04 = 120.64$
 (c) $1.2 + 0.012 = 1.212$
 (d) $2.5 + 0.05 + 0.012 = 2.562$
 (e) $4.0 + 0.12 + 0.005 = 4.125$
 (f) $210 + 1.2 + 0.42 = 211.62$
 (g) $420 + 1.7 + 0.054 = 421.754$
 (h) $42 + 2.8 + 0.12 = 44.92$
 (i) $72 + 0.13 + 0.002 = 72.132$
 (j) $1.29 + 0.024 = 1.314$

unit 4.2 – Comparing and Ordering Decimals

- Qn1 0.65 Qn 2 95.59 Qn 3 45.327
 Qn 4 29.102 Qn 5 12.124 Qn 6 124.05
 Qn 7 13.405 Qn 8 0.25, 0.254, 0.42
 Qn 9 0.304, 0.340, 0.403
 Qn 10 0.571, 0.715, 0.751
 Qn 11 12.415, 12.421, 12.541
 Qn 12 26.721, 27.261, 27.621
 Qn 13 16.457, 16.475, 16.754
 Qn 14 81.542, 105.524, 108.452

unit 4.3.1 – Converting Fractions into Decimals (Tenths)

- Qn 1 0.6 Qn 2 0.8 Qn 3 1.7 Qn 4 2.1
 Qn 5 5.2 Qn 6 6.0 Qn 7 0.2 Qn 8 0.5
 Qn 9 1.3 Qn 10 1.7 Qn 11 1.8 Qn 12 2.6

unit 4.3.2 – Converting Fractions into Decimals (Hundredths)

- Qn 1 0.06 Qn 2 0.25 Qn 3 0.40 Qn 4 1.24
 Qn 5 0.28 Qn 6 0.35 Qn 7 1.04 Qn 8 3.02
 Qn 9 5.2 Qn 10 4.25 Qn 11 0.75 Qn 12 0.48
 Qn 13 1.68 Qn 14 3.4 Qn 15 1.34 Qn 16 2.48

Unit 4.3.3 – Converting Fractions into Decimals (Thousandths)

- Qn 1 0.006 Qn 2 0.008 Qn 3 0.042
 Qn 4 0.035 Qn 5 0.482 Qn 6 0.125
 Qn 7 1.234 Qn 8 4.256 Qn 9 0.006
 Qn 10 0.012 Qn 11 0.035 Qn 12 0.324
 Qn 13 0.525 Qn 14 4.256 Qn 15 2.032
 Qn 16 6.25 Qn 17 2.75 Qn 18 5.375
 Qn 19 6.625 Qn 20 5.192

unit 4.4 – Rounding off

- Qn 1 34 Qn 2 9 Qn 3 2 Qn 4 12
 Qn 5 13 Qn 6 34 Qn 7 24.5 Qn 8 84.1
 Qn 9 22.0 Qn 10 15.3 Qn 11 9.9 Qn 12 5.5
 Qn 13 37.82 Qn 14 15.05 Qn 15 5.21 Qn 16 31.35

unit 4.5 – Converting Decimals into Fractions

- Qn 1 $\frac{96}{100} = \frac{24}{25}$ Qn 2 $\frac{43}{50}$ Qn 3 $12\frac{6}{10} = 12\frac{3}{5}$
 Qn 4 $42\frac{41}{50}$ Qn 5 $3\frac{1}{4}$ Qn 6 $8\frac{4}{25}$
 Qn 7 $37\frac{101}{125}$ Qn 8 $112\frac{173}{500}$ Qn 9 $2\frac{12}{25}$
 Qn 10 $134\frac{9}{20}$ Qn 11 $1\frac{21}{25}$ Qn 12 $45\frac{4}{5}$

unit 4.6 – Addition and Subtraction of Decimals

- Qn 1 $12 + 0.25 + 0.04 = 12.29$
 Qn 2 $26 + 0.8 + 0.32 = 27.12$
 Qn 3 $8 + 0.2 + 0.52 = 8.72$
 Qn 4 $2 + 0.4 + 0.24 = 2.64$
 Qn 5 $0.9 + 84.9 = 85.8$ Qn 6 $0.24 + 24.5 = 24.74$
 Qn 7 146.85 Qn 8 237.97
 Qn 9 95.31 Qn 10 173.9
 Qn 11 $63.2 - 1.2 = 62$ Qn 12 $12.8 - 0.31 = 12.49$
 Qn 13 56.86 Qn 14 74.28
 Qn 15 36.54 Qn 16 15.2

- Qn 17
 Amount of change received = $\$50.00 - \$18.30 - \$7.80 = \23.90

- Qn 18
 Amount short of = $\$85 - \$23.50 - \$30.20 - \$21.80 = \$9.50$

- Qn 19
 Amount left = $\$20 - \$4.50 - \$3.20 - \$2.70 = \$9.60$

Unit 4.7 – Multiplication of Decimals

- Qn 1 Amount received = $\$345.50 \times 8 = \2764
 Qn 2 Cost of parcel = $3 \text{ kg} \times \$1.26 = \3.78
 Qn 3 Amount paid = $\$54.20 \times 9 = \487.80

- Qn 4 Total length of cloth = $26.42 \times 8 = 211.36 \text{ m}$

- Qn 5 Amount of water stored = $1.25 \text{ t} \times 7 = 8.75 \text{ t}$

- Qn 6 Changed received = $\$100 - \$8.40 \times 8 = \$32.80$

- Qn 7 Cost of MP3 = $4 \times \$18.40 = \73.60
 Total cost = $\$73.60 + \$18.40 = \$92$

- Qn 8 8 cups cost = $8 \times \$2.30 = \18.40
 5 plates cost = $\$4.50 \times 5 = \22.50
 Total cost = $\$18.40 + \$22.50 = \$40.90$

unit 4.8 – Division of Decimals

Qn 1 1.6	Qn 2 1.5	Qn 3 6.25	Qn 4 2.5
$\begin{array}{r} 1.6 \\ \hline 5 \\ \underline{-} 5 \\ 0 \end{array}$	$\begin{array}{r} 1.5 \\ \hline 4 \\ \underline{-} 4 \\ 0 \end{array}$	$\begin{array}{r} 6.25 \\ \hline 4 \\ \underline{-} 4 \\ 25 \\ \underline{-} 24 \\ 10 \\ \underline{-} 8 \\ 20 \\ \underline{-} 20 \\ 0 \end{array}$	$\begin{array}{r} 2.5 \\ \hline 8 \\ \underline{-} 16 \\ 20 \\ \underline{-} 16 \\ 0 \end{array}$

- Qn 4 Amount paid daily = $\$196 \div 8 = \24.50

- Qn 5 Cost of each pen = $\$42 \div 8 = \5.25

- Qn 6 Mass of each packet = $145.2 \text{ kg} \div 6 = 24.2 \text{ kg}$

Qn 7

- 2 magazines = $2 \times \$4.50 = \9
 \\$9 + \\$6.20 = $\$15.20$
 6 pens = $\$50 - \$15.20 = \$34.80$
 1 pen = $\$34.80 \div 6 = \5.80

Qn 8

- 3 calculators = $3 \times \$15.50 = \46.50
 \\$46.50 + \\$4.50 = $\$51$
 5 towels = $\$100 - \$51 = \$49$
 1 towel = $\$49 \div 5 = \9.80

Chapter 5 Area and Perimeter

Unit 5.1 – Finding Area and Perimeter with Given Sides

- Qn 1
 (a) Area = $7 \text{ cm} \times 3 \text{ cm} = 21 \text{ cm}^2$
 Perimeter = $(7 \text{ cm} + 3 \text{ cm}) \times 2 = 20 \text{ cm}$

- (b) Area = $13 \text{ cm} \times 4 \text{ cm} = 52 \text{ cm}^2$
 Perimeter = $(13 \text{ cm} + 4 \text{ cm}) \times 2 = 34 \text{ cm}$

- (c) Area = $18 \text{ cm} \times 12 \text{ cm} = 216 \text{ cm}^2$
 Perimeter = $(18 \text{ cm} + 12 \text{ cm}) \times 2 = 60 \text{ cm}$

- Qn 2
 (a) Area = $7 \text{ cm} \times 7 \text{ cm} = 49 \text{ cm}^2$
 Perimeter = $7 \text{ cm} \times 4 = 28 \text{ cm}$

- (b) Area = $15 \text{ cm} \times 15 \text{ cm} = 225 \text{ cm}^2$
 Perimeter = $15 \text{ cm} \times 4 = 60 \text{ cm}$

- (c) Area = $13 \text{ cm} \times 13 \text{ cm} = 169 \text{ cm}^2$
 Perimeter = $13 \text{ cm} \times 4 = 52 \text{ cm}$

Unit 5.2 – Finding Sides with Given Area OR Perimeter

- Qn 1
 (a) Breadth = $72 \text{ cm}^2 \div 9 \text{ cm} = 8 \text{ cm}$
 Perimeter = $(9 \text{ cm} + 8 \text{ cm}) \times 2 = 34 \text{ cm}$

- (b) Breadth = $150 \text{ cm}^2 \div 15 \text{ cm} = 10 \text{ cm}$
 Perimeter = $(15 \text{ cm} + 10 \text{ cm}) \times 2 = 50 \text{ cm}$

- (c) Length = $84 \text{ cm}^2 \div 4 \text{ cm} = 21 \text{ cm}$
 Perimeter = $(21 \text{ cm} + 4 \text{ cm}) \times 2 = 50 \text{ cm}$

- (d) Length = $150 \text{ cm}^2 \div 10 \text{ cm} = 15 \text{ cm}$
 Perimeter = $(15 \text{ cm} + 10 \text{ cm}) \times 2 = 50 \text{ cm}$

- Qn 2
 (a) Length = 3 cm
 Perimeter = $3 \text{ cm} \times 4 = 12 \text{ cm}$

- (b) Length = 8 cm
 Perimeter = $8 \text{ cm} \times 4 = 32 \text{ cm}$

- (c) Length = 6 cm
 Perimeter = $6 \text{ cm} \times 4 = 24 \text{ cm}$

- (d) Length = 5 cm
 Perimeter = $5 \text{ cm} \times 4 = 20 \text{ cm}$

- Qn 3
 (a) Length = $24 \text{ cm} \div 4 = 6 \text{ cm}$
 Area = $6 \text{ cm} \times 6 \text{ cm} = 36 \text{ cm}^2$

Qn 3 (Cont.)

(b) Length = $44 \text{ cm} \div 4$
 $= 11 \text{ cm}$
 Area = $11 \text{ cm} \times 11 \text{ cm}$
 $= 121 \text{ cm}^2$

(c) Length = $64 \text{ cm} \div 4$
 $= 16 \text{ cm}$
 Area = $16 \text{ cm} \times 16 \text{ cm}$
 $= 256 \text{ cm}^2$

(d) Length = $56 \text{ cm} \div 4$
 $= 14 \text{ cm}$
 Area = $14 \text{ cm} \times 14 \text{ cm}$
 $= 196 \text{ cm}^2$

Unit 5.3 – Area and Perimeter of Composite Figures (Basics)

Qn 1
 $20 - 8 = 12$
 $12 \div 2 = 6$
 $16 - 6 = 10$
 $10 \div 2 = 5$
 Area A = $16 \text{ cm} \times 6 \text{ cm}$
 $= 96 \text{ cm}^2$
 Area B = $10 \text{ cm} \times 6 \text{ cm}$
 $= 60 \text{ cm}^2$
 Area C = $8 \text{ cm} \times 5 \text{ cm}$
 $= 40 \text{ cm}^2$
 Total Area = $96 \text{ cm}^2 + 60 \text{ cm}^2 + 40 \text{ cm}^2$
 $= 196 \text{ cm}^2$
 Total Perimeter = $(16 + 20) \times 2$
 $= 72 \text{ cm}$

Qn 2
 Area A = $22 \text{ cm} \times 4 \text{ cm}$
 $= 88 \text{ cm}^2$
 Area B = $8 \text{ cm} \times 8 \text{ cm}$
 $= 64 \text{ cm}^2$
 Area C = $8 \text{ cm} \times 4 \text{ cm}$
 $= 32 \text{ cm}^2$
 Total Area = $88 \text{ cm}^2 + 64 \text{ cm}^2 + 32 \text{ cm}^2$
 $= 184 \text{ cm}^2$
 Total Perimeter = $(22 \text{ cm} + 4 \text{ cm} + 16 \text{ cm}) \times 2$
 $= 84 \text{ cm}$

Qn 3
 Area of big square = $14 \text{ cm} \times 14 \text{ cm}$
 $= 196 \text{ cm}^2$
 Area of 4 small squares = $3 \text{ cm} \times 3 \text{ cm} \times 4$
 $= 36 \text{ cm}^2$
 Area of remaining figure = $196 \text{ cm}^2 - 36 \text{ cm}^2$
 $= 160 \text{ cm}^2$
 Perimeter of remaining figure = $14 \text{ cm} \times 4$
 $= 56 \text{ cm}$

Qn 4
 Area of big square = $18 \text{ cm} \times 18 \text{ cm}$
 $= 324 \text{ cm}^2$
 Area of 4 small squares = $4 \text{ cm} \times 4 \text{ cm} \times 4$
 $= 64 \text{ cm}^2$
 Area of remaining figure = $324 \text{ cm}^2 - 64 \text{ cm}^2$
 $= 260 \text{ cm}^2$
 Perimeter of remaining figure = $18 \text{ cm} \times 4$
 $= 72 \text{ cm}$

Qn 5

Area of rectangle = $14 \text{ cm} \times 10 \text{ cm}$
 $= 140 \text{ cm}^2$
 Area of 4 squares = $2 \text{ cm} \times 2 \text{ cm} \times 4$
 $= 16 \text{ cm}^2$
 Area of remaining figure = $140 \text{ cm}^2 - 16 \text{ cm}^2$
 $= 124 \text{ cm}^2$
 Perimeter of remaining figure = $(14 \text{ cm} + 10 \text{ cm}) \times 2$
 $= 48 \text{ cm}$

Qn 6

Area of rectangle = $22 \text{ cm} \times 14 \text{ cm}$
 $= 308 \text{ cm}^2$
 Area of 4 squares = $2 \text{ cm} \times 2 \text{ cm} \times 4$
 $= 16 \text{ cm}^2$
 Area of remaining figure = $308 \text{ cm}^2 - 16 \text{ cm}^2$
 $= 292 \text{ cm}^2$
 Perimeter of remaining figure = $(22 \text{ cm} + 14 \text{ cm}) \times 2 + 4 \text{ cm} + 4 \text{ cm}$
 $= 72 \text{ cm} + 8 \text{ cm}$
 $= 80 \text{ cm}$

Unit 5.4 – Area and Perimeter of Proportional Figures

Qn 1
 Length x Breadth = 108 cm^2
 3 units x 1 unit = 108 cm^2
 1 unit x 1 unit = $108 \text{ cm}^2 \div 3$
 $= 36 \text{ cm}^2$

1 unit = 6 cm
 Length = 18 cm
 Breadth = 6 cm
 Perimeter = $(18 \text{ cm} + 6 \text{ cm}) \times 2$
 $= 48 \text{ cm}$

Qn 2
 Length x Breadth = 64 cm^2
 4 units x 1 unit = 64 cm^2
 1 unit x 1 unit = $64 \text{ cm}^2 \div 4$
 $= 16 \text{ cm}^2$

1 unit = 4 cm
 Length = 16 cm
 Breadth = 4 cm
 Perimeter = $(16 \text{ cm} + 4 \text{ cm}) \times 2$
 $= 40 \text{ cm}$

Qn 3

Length x Breadth = 27 cm^2
 3 units x 1 unit = 27 cm^2
 1 unit x 1 unit = $27 \text{ cm}^2 \div 3$
 $= 9 \text{ cm}^2$

1 unit = 3 cm
 Length = 9 cm
 Breadth = 3 cm
 Perimeter = $(9 \text{ cm} + 3 \text{ cm}) \times 2$
 $= 24 \text{ cm}$

Qn 4
 Breadth = 2 units
 Length = 3 units

2 units x 3 unit = 54 cm^2
 1 unit x 1 unit = $54 \text{ cm}^2 \div 6$
 $= 9 \text{ cm}^2$

Qn 4 (Cont.)

1 unit = 3 cm
 Breadth = 2×3
 $= 6 \text{ cm}$
 Length = 3×3
 $= 9 \text{ cm}$
 Perimeter = $(6 \text{ cm} + 9 \text{ cm}) \times 2$
 $= 30 \text{ cm}$

Qn 5

Breadth = 3 units
 Length = 4 units

3 units x 4 unit = 192 cm^2
 1 unit x 1 unit = $192 \text{ cm}^2 \div 12$
 $= 16 \text{ cm}^2$
 1 unit = 4 cm

Breadth = 3×4
 $= 12 \text{ cm}$
 Length = 4×4
 $= 16 \text{ cm}$
 Perimeter = $(12 \text{ cm} + 16 \text{ cm}) \times 2$
 $= 56 \text{ cm}$

Unit 5.5 – Area and Perimeter of Squares using Guess and Check

Qn 1
Guess-and-Check:
 $100 - 49 = 51$
 $(10 \times 10) - (5 \times 5) = 51$
 Area of big square = 100 m^2 ($10 \text{ m} \times 10 \text{ m}$)
 Area of garden = $100 \text{ m}^2 - 51 \text{ m}^2$
 $= 49 \text{ m}^2$ ($7 \text{ m} \times 7 \text{ m}$)

Qn 2
Guess-and-Check:
 $144 - 64 = 80$
 $(12 \times 12) - (8 \times 8) = 80$
 Area of big square = 144 m^2 ($12 \text{ m} \times 12 \text{ m}$)
 Area of garden = $144 \text{ m}^2 - 80 \text{ m}^2$
 $= 64 \text{ m}^2$ ($8 \text{ m} \times 8 \text{ m}$)

Qn 3

Length of square garden = $36 \text{ m} \div 4$
 $= 9 \text{ m}$
 Area of square garden = $9 \text{ m} \times 9 \text{ m}$
 $= 81 \text{ m}^2$
 Area of big square = 144 m^2
 $= 144 \text{ m}^2 - 81 \text{ m}^2$
 $= 63 \text{ m}^2$

Qn 4

Length of pool = $64 \text{ m} \div 4$
 $= 16 \text{ m}$
 Area of swimming pool = $16 \text{ m} \times 16 \text{ m}$
 $= 256 \text{ m}^2$
 Area of square = $20 \text{ m} \times 20 \text{ m}$
 $= 400 \text{ m}^2$
 Area of border = $400 \text{ m}^2 - 256 \text{ m}^2$
 $= 144 \text{ m}^2$

Qn 5

Length of square garden = 8 m
 Area of big square = $(8 + 6) \text{ m} \times (8 + 6) \text{ m}$
 $= 14 \text{ m} \times 14 \text{ m}$
 $= 196 \text{ m}^2$
 Area of pathway = $196 \text{ m}^2 - 64 \text{ m}^2$
 $= 132 \text{ m}^2$

Qn 6

Length of small square = 8 cm
 Length of big square = $8 \text{ cm} + 4 \text{ cm}$
 $= 12 \text{ cm}$
 Area of big square = $12 \text{ cm} \times 12 \text{ cm}$
 $= 144 \text{ cm}^2$

Qn 7
 Since $64 - 16 = 48$
 Area of big square = 64 cm^2

Qn 8
 Since $36\text{cm}^2 + 64\text{cm}^2 = 100 \text{ cm}^2$
 Length of small square = 6 cm
 Length of big square = 8 cm
 Total perimeter = $(6 \text{ cm} + 8 \text{ cm} + 8 \text{ cm}) \times 2$
 $= 44 \text{ cm}$

Qn 9
 Since $81 \text{ cm}^2 + 144 \text{ cm}^2 = 225 \text{ cm}^2$
 Length of small square = 9 cm
 Length of big square = 12 cm
 Total perimeter of figure = $(12 \text{ cm} + 12 \text{ cm} + 9 \text{ cm}) \times 2$
 $= 66 \text{ cm}$

Unit 5.6 – Area and Perimeter of Composite Figures (Intermediate)

Qn 1

Area of garden = $9 \text{ m} \times 5 \text{ m}$
 $= 45 \text{ m}^2$
 Area of big rectangle = $13 \text{ m} \times 9 \text{ m}$
 $= 117 \text{ m}^2$
 Area of pathway = $117 \text{ m}^2 - 45 \text{ m}^2$
 $= 72 \text{ m}^2$

Qn 2

Area of garden = $13 \text{ m} \times 8 \text{ m}$
 $= 104 \text{ m}^2$
 Area of pond = $9 \text{ m} \times 4 \text{ m}$
 $= 36 \text{ m}^2$
 Area of pathway = $104 \text{ m}^2 - 36 \text{ m}^2$
 $= 68 \text{ m}^2$

Qn 3

Perimeter of garden = $(2 \text{ units} + 1 \text{ unit}) \times 2$
 $= 6 \text{ units}$
 6 units = 48 m
 1 unit = 8 m
 Area of garden = $16 \text{ m} \times 8 \text{ m}$
 $= 128 \text{ m}^2$
 Area of big rectangle = $20 \text{ m} \times 12 \text{ m}$
 $= 240 \text{ m}^2$
 Area of pathway = $240 \text{ m}^2 - 128 \text{ m}^2$
 $= 112 \text{ m}^2$

Qn 4

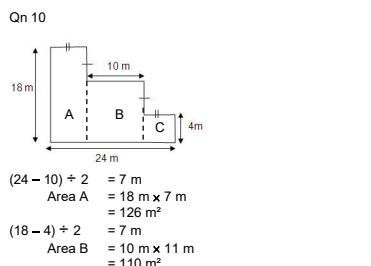
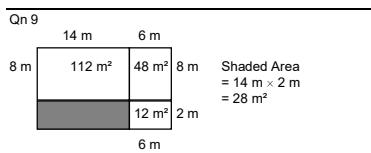
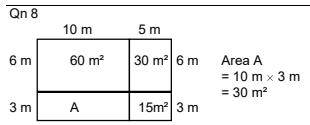
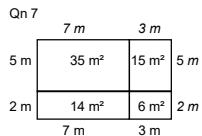
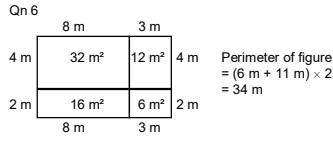
Area of pond = $3 \text{ units} \times 1 \text{ units}$
 $= 48 \text{ m}^2$
 1 unit x 1 unit = $48 \text{ m}^2 \div 3$
 $= 16 \text{ m}^2$
 1 unit = 4 m
 Length (pond) = 12 m
 Breadth (pond) = 4 m
 Area of big rectangle = $14 \text{ m} \times 6 \text{ m}$
 $= 84 \text{ m}^2$
 Area of pathway = $84 \text{ m}^2 - 48 \text{ m}^2$
 $= 36 \text{ m}^2$

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Page 23

Qn 5

Area of field	$= 2 \text{ units} \times 1 \text{ unit}$
	$= 3200 \text{ m}^2$
1 unit \times 1 unit	$= 1600 \text{ m}^2$
1 unit	$= 40 \text{ m}$
Length (field)	$= 80 \text{ m}$
Breadth (field)	$= 40 \text{ m}$
Area of big rectangle	$= 90 \text{ m} \times 50 \text{ m}$
	$= 4500 \text{ m}^2$
Area of track	$= 4500 \text{ m}^2 - 3200 \text{ m}^2$
	$= 1300 \text{ m}^2$



Qn 10 (Cont.)

Area C	$= 7 \text{ m} \times 4 \text{ m}$
	$= 28 \text{ m}^2$
Total area	$= 126 \text{ m}^2 + 110 \text{ m}^2 + 28 \text{ m}^2$
	$= 264 \text{ m}^2$
Perimeter	$= (18 \text{ m} + 24 \text{ m}) \times 2$
	$= 84 \text{ m}$

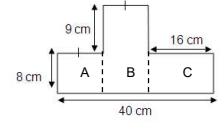
Qn 11

Area of rectangle	$= 40 \text{ cm} \times 24 \text{ cm}$
	$= 960 \text{ cm}^2$
Area of square	$= 14 \text{ cm} \times 14 \text{ cm}$
	$= 196 \text{ cm}^2$
Area of remaining figure	$= 960 \text{ cm}^2 - 196 \text{ cm}^2$
	$= 764 \text{ cm}^2$
Perimeter of figure	$= (40 \text{ cm} + 24 \text{ cm}) \times 2 + 14 \text{ cm} \times 2$
	$= 128 \text{ cm} + 28 \text{ cm}$
	$= 156 \text{ cm}$

Qn 12

$24 \div 3$	$= 8 \text{ m}$
Area A	$= 16 \text{ m} \times 8 \text{ m}$
	$= 128 \text{ m}^2$
Area B	$= 8 \text{ m} \times 10 \text{ m}$
	$= 80 \text{ m}^2$
$(16 - 6) \div 2$	$= 5 \text{ m}$
Area C	$= 8 \text{ m} \times 5 \text{ m}$
	$= 40 \text{ m}^2$
Total Area	$= 128 \text{ m}^2 + 80 \text{ m}^2 + 40 \text{ m}^2$
	$= 248 \text{ m}^2$
Total Perimeter	$= (24 \text{ m} + 16 \text{ m}) \times 2$
	$= 80 \text{ m}$

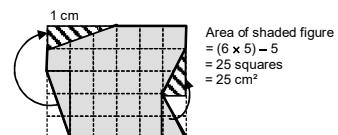
Qn 13



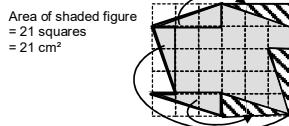
$(40 - 16) \div 2$	$= 12 \text{ cm}$
Area of A	$= 8 \text{ cm} \times 12 \text{ cm}$
	$= 96 \text{ cm}^2$
Area of B	$= 17 \text{ cm} \times 12 \text{ cm}$
	$= 204 \text{ cm}^2$
Area of C	$= 16 \text{ cm} \times 8 \text{ cm}$
	$= 128 \text{ cm}^2$
Total area	$= 96 \text{ cm}^2 + 204 \text{ cm}^2 + 128 \text{ cm}^2$
	$= 428 \text{ cm}^2$
Total perimeter	$= (40 \text{ cm} + 9 \text{ cm} + 8 \text{ cm}) \times 2$
	$= 114 \text{ m}$

Unit 5.7 – Area using Cut and Paste

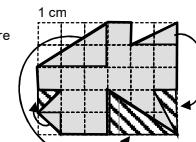
Qn 1



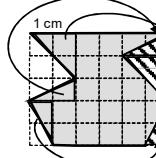
Qn 2



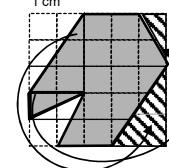
Qn 3



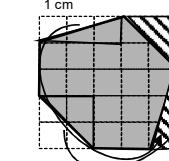
Qn 4



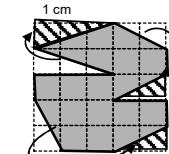
Qn 5



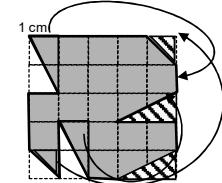
Qn 6



Qn 7



Qn 8



Chapter 6 Graphs

Unit 6.1 – Interpreting Line Graphs

Qn 1(a) 12 pm (b) 4 (c) 13 (d) 22 (e) 4

Qn 2(a) \$16 000 (b) 2007 (c)\$24 000 - \$4 000 = \$20 000

Qn 3(a) 48 kg (b) April or May (c) 38 kg (d) June

Qn 4(a) Total = 8 + 14 + 18 + 34 + 26 = 100
(b) 34 + 26 = 60 (c) 26 - 14 = 12 (d) 8 + 14 = 22

Qn 5(a) Total = 11 + 13 + 9 + 15 + 27 = 75
(b) 27 - 13 = 14 (c) Friday (d) 11 + 13 + 9 = 33

Qn 6(a) 37.7°C
(b) 11 a.m., 2 p.m. and 4 p.m.
(c) 9 a.m. to 10 a.m., 2 p.m. to 3 p.m.
(d) 7 hours, from 10 a.m. to 5 p.m.

Chapter 7 Time

Unit 7.1 – Measurement of Time in Seconds

Qn1 252 s Qn2 754 s Qn3 1928 s Qn4 1324 s
Qn5 3602 s Qn6 2520 s Qn7 7242 s Qn8 4500 s

Unit 7.2 – Addition and Subtraction of Time in Seconds

Qn1 12 min 33 s = 753 s Qn2 42 min 69 s = 2589 s
Qn3 50 min 35 s = 3035 s Qn4 975 s - 445 s = 530 s

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Page 25

Qn5 864 s - 175 s = 689 s	Qn6 981 s - 515 s = 466 s
Qn7 1163 s - 1005 s = 158 s	Qn8 17 min 43 s
Qn9 28 min 41 s	Qn10 16 min 25 s
Qn11 3780 s - 2542 s = 1238 s	Qn12 7225 s - 4500 s = 2725 s
Qn13 11712 s - 4980 s = 6732 s	

Unit 7.3 – Conversion into 24-hour Clock

Qn1 1412 h	Qn2 0824 h	Qn3 2145 h
Qn4 0024 h	Qn5 2400 h or 0000 h	
Qn6 0315 h	Qn7 1455 h	Qn8 2359 h
Qn9 1718 h	Qn10 1024 h	Qn11 2348 h
Qn12 1616 h	Qn13 4.25 p.m.	Qn14 7.35 a.m.
Qn15 11.15 p.m.	Qn16 6.10 p.m.	Qn17 11.59 p.m.
Qn18 12.16 p.m.	Qn19 9.06 a.m.	Qn20 11.59 a.m.
Qn21 1.12 p.m.	Qn22 9.26 a.m.	Qn23 12.55 p.m.
Qn24 1.14 p.m.	Qn25 2.17 p.m.	Qn26 12 midnight

Unit 7.4 Word Problems Involving Time

Qn1	3 h 20 min	20 min	15 min	2 h	45 min
09 20 → 12 40 → 13 00 → 13 15 → 15 11 → 16 00 He reached KL at 1600 h					
Qn 2					
4 h 45 min					
13 05	17 50	18 50	19 00	19 05	21 47
The coach reached Town B at 2147 h.					

Qn 3	25 min	5 min	35 min
05 30 → 05 55 → 06 00 → 06 35 John would reach the school at 635 a.m..			

Qn 4	15min	10min
Time Mrs Jones reach the park	0745	0800
0810		
Time Mrs Jones left the park	0905	0900
0840	5min	20mins
Time taken to exercise	0810	0840
The exercise lasted 30 minutes.		

Qn 5	Time taken for multiple choice questions	= 5 min × 10
		= 50 min
Qn 6	Time taken for work problems	= 18 min × 8
		= 144 min
Qn 7	Time taken altogether	= 50 min + 144
	min	
Qn 8		= 194 min
		= 3 hr 14 min

John completed his trial paper at 1729 h.

Chapter 8 Review

Unit 8 Review

Qn 1

D	1u 15	1u 15	1u 15
R	1u 15		
M	1u 15		
$4 \times \$15 = \60 $\$60 - \$130 = -\$70$ $\$70 = \$70 \div 5$ $= \$14$ Mark has \\$14 .			

Qn 2

∠ b	1u 1u
∠ a	1u
∠ c	1u 51
$90^\circ - 42^\circ = 48^\circ$	
$3u = 48^\circ$ $1u = 48^\circ \div 3$ $= 16^\circ$ $\angle c = 16^\circ + 51^\circ$ $= 67^\circ$	

Qn 3

B	1u 1u	$\times 5$	$\{ 330$
S	1u 1u 1u	$\times 4$	
$10u + \$12u = 22u$ $22u = \$330 \div 22$ $= \$15$ $1u = 3 \times \$15$ $= \$45$			
The shopkeeper collected \$384 altogether.			

The exercise lasted 30 minutes.

Qn 4

(a)	○ ○ ○ ○
	○ ○ ○ ○

(b)

Total chairs = 11×2

= 22

(c)

Total chairs = 21×2

= 42

(d)

$128 \div 2 = 64$

Figure no. = $64 - 1$

= 63

Qn 7 (Cont.)

At first

D	2u	3u
W	2u	140
} 588		

$$7u = 588 - 140$$

$$= 448$$

$$1u = 448 \div 7$$

$$= 64$$

$$5u = 5 \times 64$$

$$= 320$$

Daniel had \$320 at first.

Qn 8

Note : First sentence should be "Dennis and Amron shared a sum of money equally."

At first

D	
A	

End

D	1u	5u
A		128
} 467		

$$7u = 128 + 467$$

$$= 595$$

$$1u = 595 \div 7$$

$$= 85$$

$$6u = 6 \times 85$$

$$= 510$$

Dennis had \$510 at first.

Qn 9

E	1u 12
D	1u
F	1u 12 1u 1u 12
} 246	

$$3 \times 12 = 36$$

$$6u = 246 - 36$$

$$= 210$$

$$1u = 210 \div 6$$

$$= 35$$

$$3u = 3 \times 35$$

$$= 105$$

$$3u + 12 = 105 + 12$$

$$= 117$$

Fion has 117 more muffins than Eric.

Qn 10

$$\text{Length of 1 small square} = 32 \div 4$$

$$= 8 \text{ cm}$$

$$\text{Length AB} = 8 \text{ cm} \times 3$$

$$= 24 \text{ cm}$$

$$\text{Area} = 24 \text{ cm} \times 24 \text{ cm}$$

$$= 576 \text{ cm}^2$$

Qn 26 (Cont.)

$$\begin{aligned}\text{Gap} &= 42 + 34 \\&= 76 \\ \text{Difference} &= 2 \text{ sweets per pupil} \\(\text{a}) \quad \text{No. of pupils} &= 76 \div 2 \\&= 38 \\ \text{There are } 38 \text{ pupils.} \\(\text{b}) \quad \text{No. of sweets} \\C_1: \quad 5 \times 38 &= 190 \\190 + 42 &= 232 \\C_2: \quad 7 \times 38 &= 266 \\266 - 34 &= 232\end{aligned}$$

Miss Goh has 232 sweets.

Qn 27

$$\begin{aligned}(\text{a}) \quad \text{No. of squares in Pattern 1} &= 2 \times 4 \\&= 8 \\ \text{No. of squares in Pattern 2} &= 3 \times 4 \\&= 12 \\ \text{No. of squares in Pattern 8} &= 9 \times 4 \\&= 36 \\ \text{There are 36 tiles in pattern 8.} \\(\text{b}) \quad \text{No. of squares in Pattern 20} &= 21 \times 4 \\&= 84 \\ \text{There are 84 tiles in Pattern 20.}\end{aligned}$$

Qn 28

At first

K	[]
J	[]

End

K	1u	36
J	1u	36

$$\begin{aligned}1u &= 36 + 65 \\&= 101 \\101 + 36 &= 137 \\ \text{Each of them had 137 stickers at first.}\end{aligned}$$

Qn 29

Actual amount of money

C1	8 kg of sugar	4 kg of sugar
C2	8 kg of sugar	2

$$\begin{aligned}\text{Gap} &= 2 + 10 \\&= 12 \\ \text{Difference} &= 4 \text{ kg of sugar} \\4 \text{ kg of sugar} &= 12 \\1 \text{ kg of sugar} &= 12 \div 4 \\&= 3 \\1 \text{ kg of sugar cost } \$3.\end{aligned}$$

Qn 30

$$\begin{aligned}\frac{1}{2} D &= \frac{4}{5} W \\2 \times \frac{1}{2} D &= 2 \times \frac{4}{5} W \\D &= \frac{4}{5} W \\D &= 8u \\W &= 5u\end{aligned}$$

$$\begin{aligned}3u &= 75 \\1u &= 75 \div 3 \\&= 25 \\ \text{Winnie (at first)} &= 5 \times 25 \\&= 125 \\ \text{Winnie had } \$125 \text{ at first.}\end{aligned}$$

Qn 31

Note: Last sentence should be "How much more did Catherine have than Ally?"

A + B	1u	18	58
C	1u		
B	1u	18	

$$\begin{aligned}A &= 76 - 18 \\&= 58 \\B + C &= 320 - 58 \\&= 262 \\2u &= 262 - 18 \\&= 244 \\1u &= 244 \div 2 \\&= 122 \\ \text{Difference} &= 122 - 58 \\&= 64 \\ \text{Ally had } \$64 \text{ more than Catherine.}\end{aligned}$$

Qn 32

Note: Second sentence should be "Mr Lim paid \$1535 for some basketball and football."

B	25
F	25

Items	Qty	x	Value (\$)	Total value (\$)
B	1u + 7	x	25	25u + 175
F	1u	x	43	43u
Total	2u + 7	x		68u + 175

$$\begin{aligned}68u &= 1535 - 175 \\&= 1360 \\1u &= 1360 \div 68 \\&= 20 \\(\text{a}) \quad \text{He bought 20 footballs.} \\(\text{b}) \quad 25u &= 25 \times 20 \\&= 500 \\500 + 175 &= 675 \\ \text{Mr Lim spent } \$675 \text{ on the basketball.}\end{aligned}$$

Qn 33

Before

B			
S			

After

B	1u	1u	1u	1u	1u	1u
S	1u	65				

$$\begin{aligned}1u &= 65 \\8u &= 8 \times 65 \\&= 520 \\ \text{Mrs Gomez made 520 tarts to sell.}\end{aligned}$$

Qn 34

Cost

P	1u	1u	1u
M	1u		

$$\begin{aligned}\text{For every 3 muffins, Mrs Raj can buy 1 pie.} \\24 \text{ muffins} &= 8 \text{ pies} \\1u &= 8 \text{ pies} \\2u &= 16 \text{ pies} \\ \text{Mrs Raj could buy 16 pies with the rest of the money.}\end{aligned}$$

Qn 35

End

S	1u
M	1u

At first

S	1u	1u
M	1u	35

$$\begin{aligned}3u &= 134 - 35 \\&= 99 \\1u &= 99 \div 3 \\&= 33 \\2u &= 2 \times 33 \\&= 66 \\ \text{Quinnie had 66 stickers at first.}\end{aligned}$$

Qn 36

$$\begin{aligned}\frac{1}{3} P &= \frac{2}{5} A \\3 \times \frac{1}{3} P &= 3 \times \frac{2}{5} A \\P &= \frac{6}{5} A\end{aligned}$$

$$P = 6u$$

$$A = 5u$$

$$\begin{aligned}1u &= 28 \\5u &= 5 \times 28 \\&= 140\end{aligned}$$

Mrs Loh bought 140 apples.

Qn 37

$$\begin{aligned}48 \text{ pens} &= 60 \text{ pencils} \\8 \text{ pens} &= 10 \text{ pencils}\end{aligned}$$

Since 8 pens = 10 pencils, he had already bought
= 16 + 10
= 26 pencils
Difference = 60 - 26
= 34
James can buy 34 more pencils.

Qn 38

$$\begin{aligned}\text{Ribbon B} &= 1u \\ \text{Ribbon A} &= 1u + 12 \\ \text{Ribbon C} &= 1u + 25 \\ \text{Ribbon D} &= 1u + 60\end{aligned}$$

$$\begin{aligned}4u &= 357 - 97 \\&= 260\end{aligned}$$

$$1u = 65$$

$$\begin{aligned}\text{Ribbon D} &= 65 + 60 \\&= 125\end{aligned}$$

The length of the longest ribbon is 125 cm.

Qn 39

$$\begin{aligned}\text{Amount of money} &= 20 \times 3 \\&= 60\end{aligned}$$

$$\begin{aligned}\text{Cost of a bowl of ice cream} &= 3 - 0.5 \\&= 2.5 \\ \text{No. of bowls} &= 60 \div 2.5 \\&= 24 \\ \text{No. of bowls extra} &= 24 - 20 \\&= 4\end{aligned}$$

Melvin can buy 4 more bowls of ice cream.

Qn 40

$$\begin{aligned}\frac{1}{3} (20c) &= \frac{3}{4} (50c) \\3 \times \frac{1}{3} (20c) &= 3 \times \frac{3}{4} (50c) \\20c &= 9u \\50c &= 13u\end{aligned}$$

$$380u = 5700$$

$$1u = 15$$

$$13u = 13 \times 15$$

$$= 195$$

There were a total of 195 coins.

Items	Qty	x	Value (c)	Total value (\$)
20c	9u	x	20	180u
50c	4u	x	50	200u
Total	13u			380u



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Essential Problem Solving Skills

- ✓ Lateral and vertical thinking enhanced by questions of varied types, level of difficulty and topic-to-strategy approach
- ✓ Pre-exercises designed to develop conceptual understanding
- ✓ Review section by mixed topics, combined problem solving concepts

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Based on Latest
MOE Syllabus

Answers to Unit 1.1 – Highest Common Factors

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 rectangular cookie is **4 cm**.

(b) $5 \times 9 = 45$

Chef Lee can make **45 rectangular 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**

Answers to Unit 1.2 – First Common Multiple

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	4, 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

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

FCM of 4, 6 and 7 = $2 \times 2 \times 3 \times 7 = 84$

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

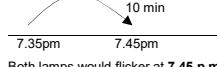
Answers to Unit 1.2 – First Common Multiple

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
5	1, 2, 5
	1, 1, 5

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

FCM of 2, 6 and 15 = $2 \times 3 \times 5 = 30$

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

Question 4

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

LCM of 5, 8 and 12 = $4 \times 5 \times 2 \times 3 = 120$

Olivia has a minimum of **120 paper clips**.

Answers to Unit 1.2 – First Common Multiple

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	9	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

A	1u	15
C	1u	

A	1u	45
S	1u	

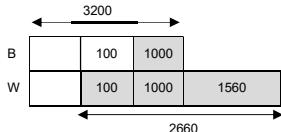
Ask Yourself

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

Answers to Unit 1.3 – More than / Less than

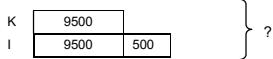
Think Further

1. There would be more black chips left in the bag.



Let's Practise 1.3

Question 1



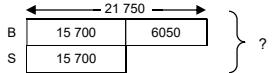
$$9500 + 500 = 10\,000$$

Irene picked 10 000 tea leaves.

$$9500 + 10\,000 = 19\,500$$

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

Question 2



$$21\,750 - 6050 = 15\,700$$

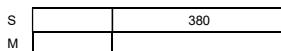
The smaller number is 15 700.

$$15\,700 + 21\,750 = 37\,450$$

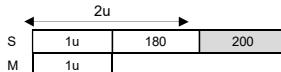
Sum of the two numbers is **37 450**.

Question 3

At first



In the end



$$1u = 180$$

$$2u = 180 + 180$$

$$= 360$$

Answers to Unit 1.3 – More than / Less than

Question 3 (Cont.)

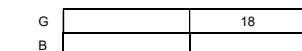
Sheila had 360 seashells in the end.

$$360 + 200 = 560$$

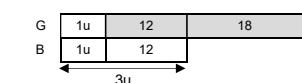
Sheila had **560 seashells** at first.

Question 4

At first



In the end



$$2u = 12$$

$$1u = 12 \div 2$$

$$= 6$$

There were 6 girls at the library in the end.

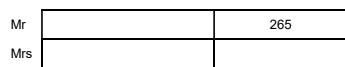
$$6u + 18 = 6 \times 6 + 18$$

$$= 54$$

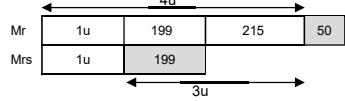
There were **54 children** at the library first.

Question 5

At first



In the end



$$3u = 199 + 215$$

$$= 414$$

$$1u = 414 \div 3$$

$$= 138$$

Mrs Lim had 138 button pins in the end.

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

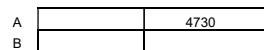
$$= 939$$

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

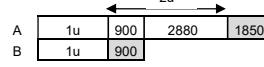
Answers to Unit 1.3 – More than / Less than

Question 6

At first



In the end



$$2u = 900 + 2880$$

$$= 3780$$

$$1u = 3780 \div 2$$

$$= 1890$$

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

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

$$= 2790$$

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

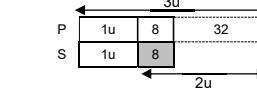
Answers to Unit 1.4 – More than / Less than

5.

In the end



At first



Let's Learn 1.4

Ask Yourself

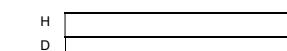
1. From 'At first' since it is given in the question that Sandy and Ella have the same amount of money at first.

2. 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.

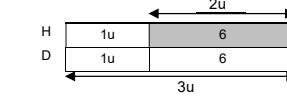
Let's Practise 1.4

Question 1

At first



In the end



$$2u = 6$$

$$1u = 6 \div 2$$

$$= 3$$

$$3u = 3 \times 3$$

$$= 9$$

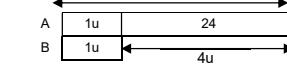
Helen had **9 soft toys** at first.

Question 2

At first



In the end



Answers to Unit 1.4 – More than / Less than

Question 2 (Cont.)

$$4u = 24$$

$$1u = 24 \div 4$$

$$= 6$$

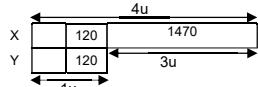
Ben took **6 photos**.

Question 3

At first



In the end



$$3u = 1590 - 120$$

$$= 1470$$

$$1u = 1470 \div 3$$

$$= 490$$

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

$$= 370$$

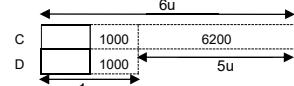
There were **370 trees** in Orchard X at first.

Question 4

In the end



At first



$$5u = 7200 - 1000$$

$$= 6200$$

$$1u = 6200 \div 5$$

$$= 1240$$

$$6u = 6 \times 1240$$

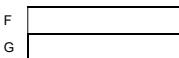
$$= 7440$$

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

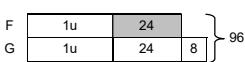
Answers to Unit 1.4 – More than / Less than

Question 5

In the end



At first



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

$$= 64$$

$$1u = 64 \div 3$$

$$= 32$$

Fred had 32 eggs at first.

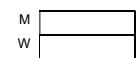
$$1u + 24 + 8 = 32 + 24 + 8$$

$$= 64$$

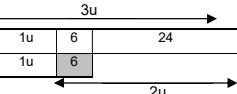
Geneve has **64 eggs** at first.

Question 6

In the end



At first



$$2u = 30$$

$$1u = 30 \div 2$$

$$= 15$$

There were 15 women at the park at first.

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

$$= 21$$

$$21 + 21 = 42$$

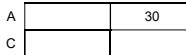
There was a total of **42 men and women** in the park in the end.

Answers to Unit 1.5 – Internal Transfer

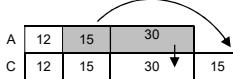
Let's Get Started 1,5

2.

At first

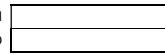


In the end

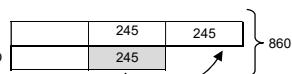


3.

In the end

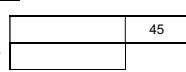


At first

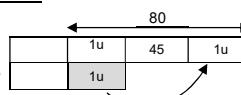


4.

At first

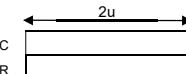


In the end

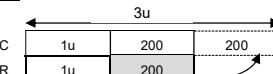


5.

In the end



At first



Answers to Unit 1.5 – Internal Transfer

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.

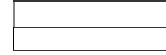
Think Further

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

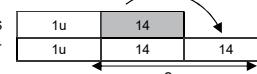
Let's Practise 1,5

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.

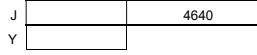
$$3u = 3 \times 14$$

$$= 42$$

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

Question 2

At first



In the end



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

$$= 5680$$

$$1u = 5680 \div 8$$

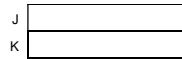
$$= 710$$

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

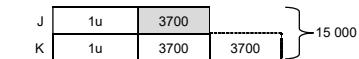
Answers to Unit 1.5 – Internal Transfer

Question 3

In the end



At first



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

$$= 7600$$

$$1u = 7600 \div 2$$

$$= 3800$$

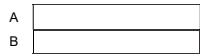
$$1u + 7400 = 3800 + 7400$$

$$= 11\,200$$

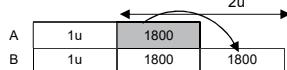
Kaitlin had **\$11 200** at first.

Question 4

Morning



Evening



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

$$= 1800$$

$$2u = 3600$$

$$1u = 3600 \div 2$$

$$= 1800$$

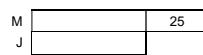
There were 1800 towels in Factory A in the evening.

$$1800 + 1800 = 3600$$

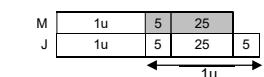
Each factory had **3600 towels** in the morning.

Question 5

At first



In the end



Answers to Unit 1.5 – Internal Transfer

Question 5 (Cont.)

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

$$= 30$$

$$1u = 35$$

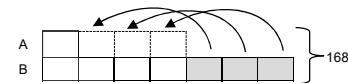
Melvin had 35 cookies in the end.

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

$$= 40$$

Johnny had **40 cookies** at first.

Question 6



$$8u = 1680$$

$$1u = 1680 \div 8$$

$$= 210$$

$$3u = 3 \times 210$$

$$= 630$$

630 decks of cards must be moved from B to A.

Answers to Unit 1.6 – One Item Unchanged

Answers to Unit 1.6 – One Item Unchanged

Ask Yourself

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

Think Further

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

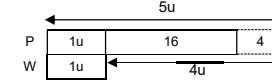
Let's Practise 1.6

Question 1

At first



In the end



$$4u = 16 + 4$$

$$= 20$$

$$1u = 20 \div 4$$

$$= 5$$

Wayne had 5 shirts in the end.

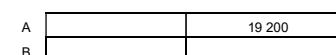
$$5u = 5 \times 5$$

$$= 25$$

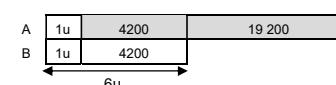
Paul had **25 shirts** in the end.

Question 2

At first



In the end



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

$$= 4200$$

$$1u = 4200 \div 5$$

$$= 840$$

Answers to Unit 1.6 – One Item Unchanged

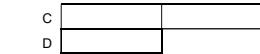
Question 2 (Cont.)

$$\begin{aligned} 1u + 23\,400 &= 840 + 23\,400 \\ &= 24\,240 \end{aligned}$$

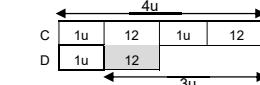
There were **24 240 ants** in Farm A at first.

Question 3

At first



In the end



$$2u = 12 + 12$$

$$= 24$$

$$1u = 24 \div 2$$

$$= 12$$

Denise had 12 hair clips in the end.

$$12 + 12 = 24$$

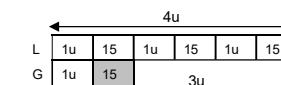
Denise had **24 hair clips** at first.

Question 4

At first



In the end



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

$$= 45$$

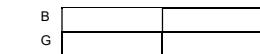
Gillian had 45 pens in the end.

$$45 + 15 = 60$$

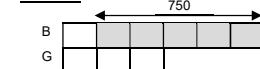
Gillian had **60 pens** at first.

Question 5

At first



In the end



Answers to Unit 1.6 – One Item Unchanged

Question 5 (Cont.)

$$\begin{aligned} 5u &= 750 \\ 1u &= 750 \div 5 \\ &= 150 \end{aligned}$$

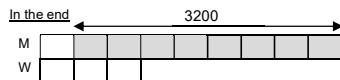
There were 150 boys at the science fair in the end.

$$\begin{aligned} 9u &= 9 \times 150 \\ &= 1350 \end{aligned}$$

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

Question 6

At first



$$\begin{aligned} 8u &= 3200 \\ 1u &= 3200 \div 8 \\ &= 400 \end{aligned}$$

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

$$\begin{aligned} 2u &= 2 \times 400 \\ &= 400 \end{aligned}$$

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

Answers to Unit 1.7 – Difference Unchanged

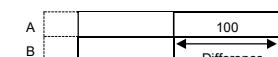
Let's Get Started 1.7

2.

At first



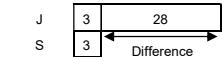
In the end



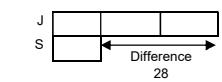
Answers to Unit 1.7 – Difference Unchanged

3.

Now

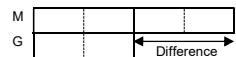


Future

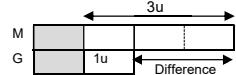


4.

At first



After

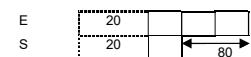


5.

At first



In the end



Ask Yourself

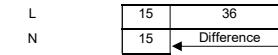
- It is a Difference Unchanged problem because the difference in their age never changes.
- The age of Aunt Lisa and the age of her nephew change as time passes.

Think further

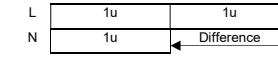
- Aunt Lisa is 51 years old and her nephew is 15 years old. How old will Aunt Lisa be when she is twice as old as her nephew?

Answers to Unit 1.7 – Difference Unchanged

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.

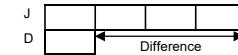
Let's Practise 1.7

Question 1

Present

$$\begin{aligned} \text{Jamie} &= 50 \text{ years old} \\ \text{Daughter} &= 29 \text{ years old} \\ \text{Difference} &= 21 \text{ years old} \end{aligned}$$

Past



$$3u = 21$$

$$\begin{aligned} 1u &= 21 \div 3 \\ &= 7 \end{aligned}$$

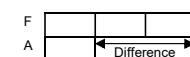
$$29 - 7 = 22$$

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



$$2u = 12$$

$$\begin{aligned} 1u &= 12 \div 2 \\ &= 6 \end{aligned}$$

$$\begin{aligned} \text{Mrs Fong} &= 3 \times 6 \\ &= 18 \end{aligned}$$

7 years' time (future)

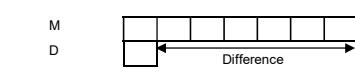
$$18 + 7 = 25$$

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

Answers to Unit 1.7 – Difference Unchanged

Question 3

Present



(a) Total age now = 8u

$$8u = 64 - 16$$

$$= 48$$

$$1u = 48 \div 8$$

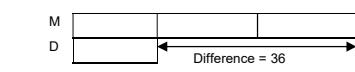
$$= 6$$

$$6u = 6 \times 6$$

$$= 36$$

Their age difference at present is 36 years.

Some years later



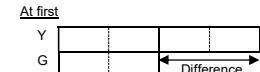
$$2u = 36$$

$$1u = 36 \div 2$$

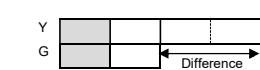
$$= 18$$

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

Question 4



In the end



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

1u = 16

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

$$4u = 4 \times 16$$

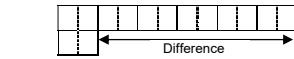
$$= 64$$

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

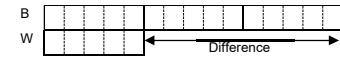
Answers to Unit 1.7 – Difference Unchanged

Question 5

At first



End



$$5u = 20$$

$$1u = 20 \div 5$$

$$= 4$$

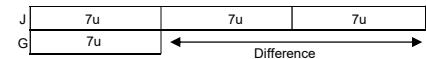
$$\text{Total balloons and whistles bought} = 3u + 3u \\ = 6u$$

$$6u = 6 \times 4 \\ = 24$$

She bought **24 balloons and whistles** in all.

Question 6

At first



End



$$\text{Joni Spent} = 21u - 16u \\ = 5u$$

$$5u = 45$$

$$1u = 45 \div 5$$

$$= 9$$

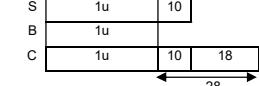
$$18u = 18 \times 9 \\ = 162$$

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

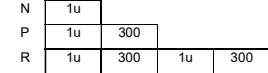
Answers to Unit 1.8 – Repeated Items

Let's Get Started 1.8

2.



3.

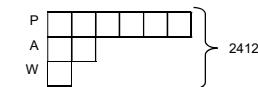


Answers to Unit 1.8 – Repeated Items

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



$$\text{Total} = 6u + 2u + 1u \\ = 9u$$

$$9u = 2412$$

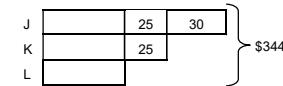
$$1u = 2412 \div 9 \\ = 268$$

$$6u = 6 \times 268 \\ = 1608$$

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**.

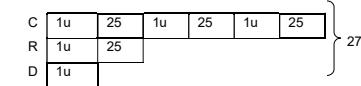
Answers to Unit 1.8 – Repeated Items

Question 2 (Cont.)

$$5u + 144 = 200 + 144 \\ = 344$$

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

Question 3



$$25 \times 4 = 100$$

$$5u = 275 - 100$$

$$= 175$$

$$1 \text{ unit} = 175 \div 5$$

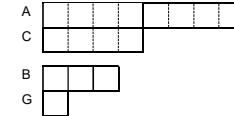
$$= 35$$

There were **35 stalks** of daisies.

$$C + D = 4u + 75 \\ = 4 \times 35 + 75 \\ = 215$$

There were **215 stalks** of carnations and daisies.

Question 4



Difference between boys and girls = $3u - 1u$

$$= 2u$$

$$2u = 2300$$

$$1u = 2300 \div 2$$

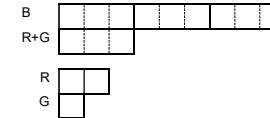
$$= 1150$$

$$8u = 8 \times 1150$$

$$= 9200$$

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

Question 5



Difference between red and grey = $2u - 1u$

$$= 1u$$

$$1u = 10$$

Difference between black and red = $9u - 2u$

$$= 7u$$

Answers to Unit 1.8 – Repeated Items

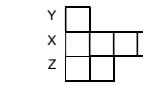
Question 5 (Cont.)

$$7u = 7 \times 10$$

$$= 70$$

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

Question 6



$$\text{Difference between } Z \text{ and } Y = 2u - 1u$$

$$= 1u$$

$$1u = 42$$

$$2u = 2 \times 42$$

$$= 84$$

$$4u = 4 \times 42$$

$$= 168$$

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

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.

Answers to Unit 1.9 – Quantity x Value

Think Further

1. Farmer Sally sold a total of 150 pineapples and peaches. Each pineapple was sold at \$3 and each peach 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 Practise 1.9

Question 1

Items	Quantity of Items	\times	Value of each unit (Wheels)	Total Value (Wheels)
B	2u	\times	2	4u
G	1u	\times	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	\times	Value of each unit (\$)	Total Value (\$)
C	2u	\times	1	2u
D	1u	\times	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	\times	Value of each unit (candy)	Total Value (candy)
G	1u	\times	2	2u
B	3u	\times	1	3u
Total	4u			5u

$$5u = 150$$

$$1u = 150 \div 5 \\ = 30$$

There were 30 girls.

$$2u = 2 \times 30 \\ = 60$$

Answers to Unit 1.9 – Quantity x Value

Question 3 (Cont.)

There were 60 more boys than girls at the party.

Question 4

Items	Quantity of Items	\times	Value of each unit (Treats)	Total Value (Treats)
G	3u	\times	3	9u
S	1u	\times	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	\times	Value of each unit (chicken wings)	Total Value (chicken wings)
Girls	3u	\times	4	12u
Boys	1u	\times	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 barbecue.

Question 6

Items	Quantity of Items	\times	Value of each unit strawberry	Total Value (strawberry)
Adults	12	\times	3u	36u
Children	30	\times	1u	30u
Total	42			66u

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

$$6u = 42$$

$$1u = 42 \div 6$$

$$= 7$$

Strawberry picked = 66u

$$66u = 66 \times 7$$

$$= 462$$

Answers to Unit 1.9 – Quantity x Value

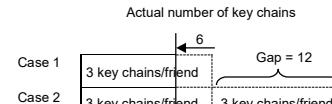
Question 6 (Cont.)

They picked 462 strawberries together.

Answers to Unit 1.10 – Gap & Difference

Let's Get Started 1.10

3.



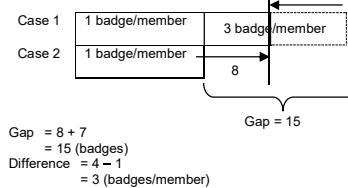
$$\text{Gap} = 18 - 6$$

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

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

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

4. Actual number of badges



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

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

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

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

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.

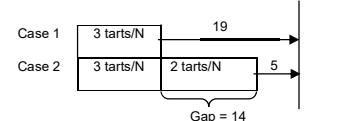
2.

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



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

$$= 14$$

Visit the forum page at www.onspunge.com for more challenging problem sums.

Answers to Unit 1.10 – Gap & Difference

Question 1 (Cont.)

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

$$(a) 14 + 2 = 7$$

She shared the tarts with 7 neighbours.

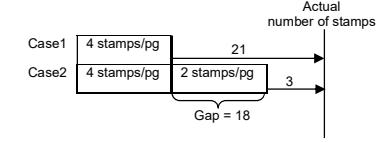
- Number of tarts made:

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

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

She made 40 tarts.

Question 2



$$\text{Gap} = 21 - 3$$

$$= 18$$

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

$$(a) 18 \div 2 = 9$$

The stamps fill 9 pages of the album.

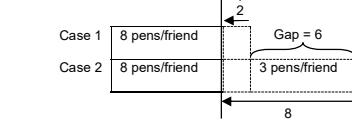
- Number of stamps:

$$\text{Using Case 1: } 4 \times 9 + 21 = 57$$

$$\text{Using Case 2: } 6 \times 9 + 3 = 57 \text{ (Checked)}$$

Amos had 57 stamps.

Question 3



$$\text{Gap} = 8 - 2$$

$$= 6$$

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

$$(a) 6 \div 3 = 2$$

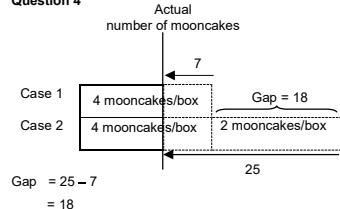
Shawn has 2 friends.

- Number of pens:

$$\text{Using Case 1: } 2 \times 8 - 2 = 14$$

$$\text{Using Case 2: } 2 \times 11 - 8 = 14 \text{ (Checked)}$$

Shawn has 14 pens.

Answers to Unit 1.10 – Gap & Difference
Question 4


(a) $18 + 2 = 9$

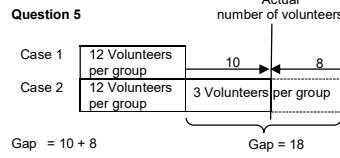
There were **9 workers**.

(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**.



Difference between Case 1 and Case 2 = $15 - 12$

= 3

(a) $18 + 3 = 6$

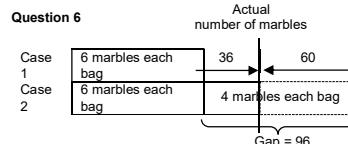
There were **6 groups** of volunteers.

(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.



Difference = $10 - 6$

= 4

Answers to Unit 1.10 – Gap & Difference
Question 6 (Cont.)

(a) Number of marbles : $96 + 4 = 24$

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 Unit 1.11 – Guess and Check
Let's Get Started 1.11

1. Quantity \times Value
2. Guess-and-Check
3. Guess-and-Check
4. Guess-and-Check
5. Quantity \times Value

Let's Learn 1.11
Ask Yourself

1. Total quantity, total value, value of items
2. Guess-and-Check

Think Further

1. Use Quantity \times Value to solve the question

Items	Quantity	\times	Value (legs)	Total value (legs)
Chicken	2u	\times	2	4u
Cow	1u	\times	4	4u
Total	3u			8u

$$8u = 64$$

$$1u = 64 \div 8$$

$$= 8$$

$$2u = 2 \times 8$$

$$= 16$$

There are **16 chickens** on the farm.

Let's Practise 1.11
Question 1

No. of hamsters	No. of hamsters' legs	No. of birds	No. of birds' legs	Total no. of legs	Check
32	$32 \times 4 = 128$	0	0	128	x
31	$31 \times 4 = 124$	1	$1 \times 2 = 2$	$124 + 2 = 126$	x
$32 - 11 = 21$	$32 \times 4 = 84$	11	$11 \times 2 = 22$	$84 + 22 = 106$	v

$$\text{Difference} = 128 - 106$$

$$= 22$$

Answers to Unit 1.11 – Guess and Check
Question 1 (Cont.)

Gap = $128 - 126$

$$= 2$$

No. of birds = $22 + 2$

$$= 11$$

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

Question 2

No. of white marbles	Total cost of white marbles	No. of black marbles	Total cost of black marbles	Total cost of all marbles	Check
40	$40 \times 0.5 = 20$	0	0	20	x
39	$39 \times 0.5 = 19.5$	1	$1 \times 0.2 = 0.2$	$19.5 + 0.2 = 19.7$	x
$40 - 1 = 39$	$22 \times 0.5 = 11$	18	$18 \times 0.2 = 3.6$	$11 + 3.6 = 14.6$	v

$$\text{Difference} = 20 - 14.6$$

$$= 5.4$$

Gap = $20 - 19.7$

$$= 0.3$$

No. of birds = $5.4 \div 0.3$

$$= 54 \div 3$$

$$= 18$$

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

Question 3

No. of motor-cycles	No. of motor-cycles wheels	No. of cars	No. of car's wheels	Total no. of wheels	Check
54	$54 \times 2 = 108$	0	0	108	x
53	$53 \times 2 = 106$	1	$1 \times 4 = 4$	$106 + 4 = 110$	x
$54 - 1 = 53$	$25 \times 2 = 50$	29	$29 \times 4 = 116$	$50 + 116 = 166$	v

$$\text{Difference} = 166 - 108$$

$$= 58$$

Gap = $110 - 108$

$$= 2$$

No. of cars = $58 \div 2$

$$= 29$$

There are **29 cars**.

Question 4

No. of bottles of water	Total cost of bottles of water	No. of bottles of fruit juice	Total cost of bottles of fruit juice	Total amount collected	Check
30	$30 \times 1 = 30$	0	0	30	x
29	$29 \times 1 = 29$	1	$1 \times 2 = 2$	$29 + 2 = 31$	x
$30 - 1 = 29$	$22 \times 1 = 22$	8	$8 \times 2 = 16$	$22 + 16 = 38$	v

$$\text{Difference} = 38 - 30$$

$$= 8$$

Answers to Unit 1.11 – Guess and Check
Question 4 (Cont.)

Gap = $31 - 30$

$$= 1$$

No. of bottles of fruit juice in one day = $8 \div 1$

$$= 8$$

No. of bottles of fruit juice sold in one week = 7×8

$$= 56$$

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

Question 5

No. of shirts without defect	Amount earned	No. of shirts with defect	Amount earned	Total amount reduced	Check
20	$20 \times 10 = 200$	0	0	200	x
19	$19 \times 10 = 190$	1	$1 \times 2 = 2$	$190 - 2 = 188$	x
$20 - 3 = 17$	$17 \times 10 = 170$	3	$3 \times 2 = 6$	$170 - 6 = 164$	v

$$\text{Difference} = 200 - 164$$

$$= 36$$

Gap = $200 - 188$

$$= 12$$

No. of shirts with defects = $36 \div 12$

$$= 3$$

3 shirts had a defect on that particular week.

Question 6

No. of correct answers	Point received	No. of incorrect answers	Points deducted	Total points awarded	Check
45	$45 \times 2 = 90$	0	0	90	x
44	$44 \times 2 = 88$	1	$1 \times 1 = 1$	$88 - 1 = 87$	x
39	$39 \times 2 = 78$	6	$6 \times 1 = 6$	$78 - 6 = 72$	v

$$\text{Difference} = 90 - 72$$

$$= 18$$

Gap = $90 - 87$

$$= 3$$

No. of incorrect answers = $18 \div 3$

$$= 6$$

No. of correct answers = $45 - 6$

$$= 39$$

He answered **39 questions** correctly.

Answers to Review Questions on Chapter 1
Question 1

C	1u	
A	1u	652
		2160

$$2u = 2160 - 652$$

$$= 1508$$

Answers to Review Questions on Chapter 1

Question 1 (Cont.)

$$1u = 1508 \div 2 \\ = 754$$

754 children attended the Gala Premier.

$$754 + 652 = 1406$$

1406 adults attended the Gala Premier.

Question 2

At first

J	[]
M	[]
K	[]

In the end

J	1u	[]
M	1u	1u
K	1u	1u

$$5u = 40 - 5$$

$$= 35$$

$$1u = 35 \div 5$$

$$= 7$$

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

W	[]
M	[]

At first

W	1u	4	12
M	1u	4	2u

$$2u = 16$$

$$1u = 16 \div 2$$

$$= 8$$

There were **8 men** at first.

$$3u = 3 \times 8$$

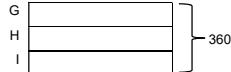
$$= 24$$

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

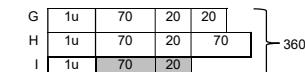
Answers to Review Questions on Chapter 1

Question 4

In the end



At first



$$(a) 3u = 360$$

$$1u = 360 \div 3 \\ = 120$$

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

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

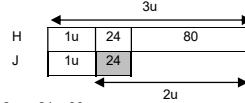
Ian had **30 cards** at first.

Question 5

At first

H	[]	80
J	[]	

In the end



$$2u = 24 + 80$$

$$= 104$$

$$1u = 104 \div 2$$

$$= 52$$

Johan had 52 marbles in the end.

$$52 + 24 = 76$$

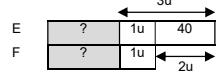
Johan had **76 marbles** at first.

Question 6

At first

E	80	40
F	80	

In the end



Answers to Review Questions on Chapter 1

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

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

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

$$3u = 369 - 72$$

$$= 297$$

$$1u = 297 \div 3$$

$$= 99$$

Maddie collected **99 seashells**.

$$(b) 99 + 16 = 115$$

Louisa collected **115 seashells**.

Question 8

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

$$10u = 124 - 24$$

$$= 100$$

$$1u = 100 \div 10$$

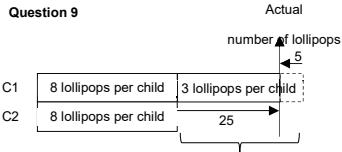
$$= 10$$

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

$$= 3 \text{ lollipops per child}$$

$$(a) 30 \div 3 = 10$$

There were **10 children** altogether.

Answers to Review Questions on Chapter 1

Question 9 (Cont.)

(b) Number of lollipops:

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

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

There were **105 lollipops**.

Question 10

At first

X	880	370
Y	880	

In the end

X	880	1u	100	1u
Y	880	1u		

$$2u = 370 - 100$$

$$= 270$$

$$1u = 270 \div 2$$

$$= 135$$

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

Question 11

At first

N	[]	76
V	[]	

In the end

N	1u	12	76
V	1u	12	

$$2u = 12 + 76$$

$$= 88$$

$$1u = 88 \div 2$$

$$= 44$$

Veronica had 44 stalks of roses in the end.

$$44 + 88 = 132$$

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

Answers to Review Questions on Chapter 1

Question 12

Difference between Emma's age and Fatima's age

$$= 29 - 17$$

$$= 12$$

Now

F	17	12
E	17	Difference

? years ago (Past)

F	12	12
E	12	Difference

$$1u = 12$$

$$17 - 12 = 5$$

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

Question 13

D	1u	1u	1u
S	1u		

$$\text{Total} = 3u + 3u + 3u + 1u$$

$$= 10u$$

$$10u = 200$$

$$1u = 200 \div 10$$

$$= 20$$

$$6u = 6 \times 20$$

$$= 120$$

2 such dresses cost **\$120**.

Question 14

M	1u	1u	1u	1u
D	1u			
T	1u	998		

$$6u = 2432 - 998$$

$$= 1434$$

$$1u = 1434 \div 6$$

$$= 239$$

$$4u = 4 \times 239$$

$$= 956$$

The mobile phone cost **\$956**.

Question 15

Multiples of 7: 7, 14, 21, 28, 35, 42, 49, ...

(add 6 extra) : 13, 20, 27, 34, 41, 48, ...

Multiples of 8: 8, 16, 24, 32, 40, 48

(add 2 extra): 10, 18, 26, 34, 42, ...

Jeremy has **34 lollipops**.

Answers to Review Questions on Chapter 1

Question 16

In the end

M	1u	1u
B	1u	

At first

M	1u	1u	247
B	1u		

$$3u = 2350 - 247$$

$$= 2103$$

$$1u = 2103 \div 3$$

$$= 701$$

$$2u = 2103 - 701$$

$$= 1402$$

$$\text{Magnets (at first)} = 1402 + 247$$

$$= 1649$$

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

Question 17

In the end

A	1u	1u	1u
C	1u		

$$4u = 54 + 12 - 18$$

$$= 48$$

$$1u = 48 \div 4$$

$$= 12$$

$$1u + 18 = 12 + 18$$

$$= 30$$

30 children boarded the bus at the interchange.

Question 18

$$4T + 5S = 56$$

$$2T + 3S = 30$$

$$4T + 6S = 2 \times 30$$

$$= 60$$

$$1S = 60 - 56$$

$$= 4$$

$$10S = 10 \times 4$$

$$= 40$$

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

Answers to Review Questions on Chapter 1

Question 19

$$6u = 3678$$

$$1u = 3678 \div 6$$

$$= 613$$

Shiro (at first) = $613 - 34$

$$= 579$$

Shiro had **\$579** at first.

Question 20

No. of adult tickets	Total cost of adult tickets	No. of child tickets	Total cost of child tickets	Total cost	Check
35	$35 \times 12 = 420$	0	0	420	x
34	$34 \times 12 = 408$	1	$1 \times 5 = 5$	$408 + 5 = 413$	x
35 - 15 = 20	$20 \times 12 = 240$	15	$15 \times 5 = 75$	$240 + 75 = 315$	✓

$$\text{Difference} = 420 - 315$$

$$= 105$$

$$\text{Gap} = 420 - 413$$

$$= 7$$

$$\text{No. of child tickets} = 105 \div 7$$

$$= 15$$

Alison bought **15 child tickets**.

Answers to Unit 2.1 – Fractions Basics

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

$$\begin{aligned} 4. \quad \frac{2}{3} &= \frac{14}{21} & \frac{2}{7} &= \frac{6}{21} \\ \text{Total painted} &= \frac{14}{21} + \frac{6}{21} & = \frac{20}{21} \\ &= \frac{1}{21} \\ \text{Poles unpainted} &= \frac{21}{21} - \frac{20}{21} & = \frac{1}{21} \\ &= 57 \text{ cm} \\ 21u &= 1197 \text{ cm} \end{aligned}$$

Think Further

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

Let's Practise 2.1

Question 1

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

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

$$7u = 56$$

$$1u = 56 \div 7$$

$$= 8$$

$$15u = 8 \times 15$$

$$= 120$$

120 cookies were given to her neighbours.

Question 2

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

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

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

Answers to Unit 2.1 – Fractions Basics

Question 2 (Cont.)

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

$$7u = 84$$

$$1u = 84 \div 7$$

$$= 12$$

$$2u = 2 \times 12$$

$$= 24$$

24 stamps are from America.

Question 3

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

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

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

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

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

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

$$= 100$$

$$3u \text{ of the people} = 3 \times 100$$

$$= 300$$

There were 300 organisers.

$$(b) 4u \text{ of the people} = 300$$

$$1u \text{ of the people} = 300 \div 4$$

$$= 75$$

75 of the organising members were female.

Question 4

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

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

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

$$= \frac{1}{40}$$

$$1u \text{ of the lemonade} = 80$$

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

$$= 3200$$

Mrs Jones made 3200 mℓ of lemonade.

Answers to Unit 2.1 – Fractions Basics

Question 5

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

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

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

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

$$1u \text{ of fabric} = 22 \div 11$$

$$= 2$$

$$12u \text{ of fabric} = 12 \times 2$$

$$= 24$$

Selina bought 24 m of fabric.

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

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

$$= 6$$

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

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

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

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

$$= \frac{7}{10}$$

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

$$= \frac{3}{10}$$

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

$$1u \text{ of the total} = 270 \div 3$$

$$= 90$$

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

$$= 900$$

There were 900 muffins.

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

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

$$= 150$$

There were 150 muffins left.

Answers to Unit 2.2 – Numerators the Same

Let's Get Started 2.2

3.

Model-drawing approach

C



D



Unitary approach

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

4.

Unitary approach

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

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.

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

Difference = 10u - 9u

$$= 1u$$

$$1u = 15$$

$$19u = 19 \times 15$$

$$= 285$$

There were 285 children altogether.

Let's Practise 2.2

Question 1

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

$$10u = 60$$

$$1u = 60 \div 10$$

$$= 6$$

Visit the forum page at www.onspunge.com for more challenging problem sums.

Answers to Unit 2.2 – Numerators the Same

Question 1 (Cont.)

$$(a) 6u = 6 \times 6$$

$$= 36$$

There are 36 storybooks.

$$(b) 2u = 2 \times 6$$

$$= 12$$

There are 12 more storybooks than comic books.

Question 2

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

$$9u = 45$$

$$1u = 45 \div 9$$

$$= 5$$

$$6u = 6 \times 5$$

$$= 30$$

There were 30 apple sweets.

Question 3

Orange Tiles

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

Blue Tiles

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

Left

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

$$13u = 130$$

$$1u = 130 \div 13$$

$$= 10$$

$$3u = 3 \times 10$$

$$= 30$$

Chu Kang had 30 orange tiles in the end.

Question 4

Chickens

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

Ducks

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

Left

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

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

Answers to Unit 2.2 – Numerators the Same

Question 4 (Cont.)

Total Sold

$$\begin{aligned} C &= 16u & C &= 16u - 10u \\ &&&= 6u \\ D &= 25u & D &= 25u - 10u \\ &&&= 15u \\ \text{Difference} &= 15u - 6u \\ &&&= 9u \\ 9u &= 36 \\ 1u &= 36 \div 9 \\ &= 4 \\ \text{Total sold} &= 6u + 15u \\ &&= 21u \\ 21u &= 21 \times 4 \\ &&= 84 \\ \text{Mr Lim sold } &\text{84 ducks and chickens.} \end{aligned}$$

Question 5

$$\begin{aligned} \frac{1}{5}J &= \frac{3}{4}K & K &= \frac{2}{5}L \\ \frac{6}{30}J &= \frac{6}{8}K & K &= \frac{6}{15}L \\ \left. \begin{array}{l} \text{Total } J = 30u \\ \text{Total } K = 8u \\ \text{Total } L = 15u \\ \text{Total} = 30u + 8u + 15u \\ = 53u \end{array} \right\} \end{aligned}$$

$$\begin{aligned} \text{Difference} &= 15u - 8u \\ &= 7u \end{aligned}$$

$$7u = 7$$

$$1u = 1$$

$$53u = 53$$

The boys received \$53 from their uncle.

Question 6

$$\begin{aligned} \frac{3}{4}L &= \frac{3}{7}E & E &= \frac{4}{5}G \\ \frac{12}{16}L &= \frac{12}{28}E & E &= \frac{12}{15}G \\ \left. \begin{array}{l} \text{Total } L = 16u \\ \text{Total } E = 28u \\ \text{Total } G = 15u \\ \text{Difference} = 28u - 16u \\ = 12u \end{array} \right\} \end{aligned}$$

$$12u = 24$$

$$1u = 24 \div 12$$

$$= 2$$

$$\begin{aligned} 16u &= 16 \times 2 \\ &= 32 \text{ (Lucia)} \end{aligned}$$

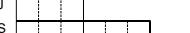
$$\begin{aligned} 28u &= 28 \times 2 \\ &= 56 \text{ (Eliza)} \end{aligned}$$

$$\begin{aligned} 15u &= 15 \times 2 \\ &= 30 \text{ (Grace)} \end{aligned}$$

Lucia, Eliza and Grace collected 32, 56 and 30 leaves respectively.

Answers to Unit 2.3 – Repeated Items

Let's Get Started 2.3

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

Ask Yourself

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

Think Further

$$\begin{aligned} 1. \quad \begin{array}{l} \text{Case 1} \\ S = 2u^3(6u) \\ C = 5u^3(15u) \end{array} & \left. \begin{array}{l} \text{Summary} \\ S = 6u \\ C = 15u \end{array} \right\} \\ \begin{array}{l} \text{Case 2} \\ C = 3u^5(15u) \\ J = 4u^5(20u) \end{array} & \begin{array}{l} \text{Summary} \\ J = 20u \\ Total = 6u + 15u + 20u \\ = 41u \end{array} \end{aligned}$$

$$20u = 40$$

$$1u = 40 \div 20$$

$$= 2$$

Number of files Charmaine bought more than Sylvia

$$= 15u - 6u$$

$$= 9u$$

$$9u = 9 \times 2$$

$$= 18$$

Charmaine bought 18 more files than Sylvia.

Answers to Unit 2.3 – Repeated Items

Let's Practise 2.3

Question 1

$$\left. \begin{array}{l} \text{Case 1} \\ A = 1u \\ P = 3u \\ \text{Case 2} \\ A = 1u \\ O = 2u \end{array} \right\} \quad \begin{array}{l} \text{Summary} \\ A = 1u \\ P = 3u \\ O = 2u \\ Total = 1u + 2u + 3u \\ = 6u \end{array}$$

$$6u = 60$$

$$1u = 60 \div 6$$

$$= 10$$

$$3u = 3 \times 10$$

$$= 30$$

There are 30 pears.

Question 2

$$\left. \begin{array}{l} \text{Case 1} \\ M = 2u \\ L = 3u \\ \text{Case 2} \\ M = 1u^2(2u) \\ N = 3u^2(6u) \end{array} \right\} \quad \begin{array}{l} \text{Summary} \\ M = 2u \\ L = 3u \\ N = 6u \\ Total = 2u + 3u + 6u \\ = 11u \end{array}$$

Difference between Nathaniel and Michael

$$= 6u - 2u$$

$$= 4u$$

$$4u = 44$$

$$1u = 44 \div 4$$

$$= 11$$

$$11u = 11 \times 11$$

$$= 121$$

They have a total of 121 cards.

Question 3

$$\left. \begin{array}{l} \text{Case 1} \\ P = 3u^2(6u) \\ S = 5u^2(10u) \\ \text{Case 2} \\ S = 2u^5(10u) \\ T = 3u^5(15u) \end{array} \right\} \quad \begin{array}{l} \text{Summary} \\ P = 6u \\ S = 10u \\ T = 15u \\ Total = 6u + 10u + 15u \\ = 31u \end{array}$$

Difference between Tess and Patrick = 15u - 6u

$$= 9u$$

$$9u = 63$$

$$1u = 63 \div 9$$

$$= 7$$

Visit the forum page at www.onspunge.com for more challenging problem sums.

Page 25

Answers to Unit 2.3 – Repeated Items

Question 3 (Cont.)

$$31u = 31 \times 7$$

$$= 217$$

The children were given 217 sweets.

Question 4

Case 1

$$\begin{array}{l} \text{Red} = 4u^3(12u) \\ \text{Yellow} = 7u^3(21u) \end{array} \quad \begin{array}{l} \text{Summary} \\ R = 12u \\ Y = 21u \\ Total = 12u + 21u + 20u \\ = 53u \end{array}$$

$$53u = 106$$

$$1u = 106 \div 53$$

$$= 2$$

$$21u = 21 \times 2$$

$$= 42$$

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

Question 5

Case 1

$$\begin{array}{l} C = 2u^5(10u) \\ M = 3u^5(15u) \end{array} \quad \begin{array}{l} \text{Summary} \\ C = 10u \\ M = 15u \\ I = 8u \\ Total = 10u + 15u + 8u \\ = 33u \end{array}$$

$$\begin{array}{l} \text{Malay and Indian} = 15u + 8u \\ = 23u \end{array}$$

Difference between Chinese students and the Malay and Indian students combined = 23u - 10u = 13u

$$13u = 104$$

$$1u = 104 \div 13$$

$$= 8$$

$$33u = 33 \times 8$$

$$= 264$$

A total of 264 students enrolled in the school.

Question 6

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

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

Answers to Unit 2.3 – Repeated Items

Question 6 (Cont.)

Case 1
 $M = 3u^x(12u)$

$K = 8u^x(32u)$

Summary

$M = 12u$

Case 2
 $M = 4u^x(12u)$

$L = 7u^x(21u)$

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

$21u = 21 \times 5$

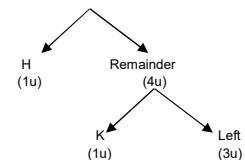
= 105

Lionel has **105 bullets**.

Answers to Unit 2.4 – Branching

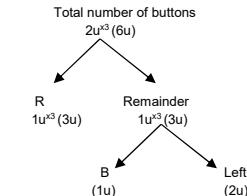
Let's Get Started 2.4

1. Total number of marbles
 $(5u)$



Answers to Unit 2.4 – Branching

3.

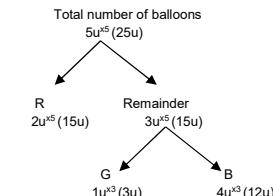


Ask Yourself

- The keywords are 'of the remainder'.

Think Further

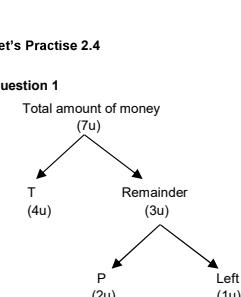
1.



Let's Practise 2.4

Question 1

Total amount of money
 $(7u)$



Question 1

Total amount of money
 $(7u)$

$T = 4u$

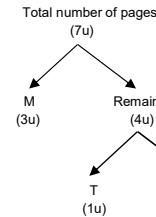
$7u = 7 \times 4$

= 35

He had \$35 at first.

Answers to Unit 2.4 – Branching

Question 2



Difference = $3u - 1u$

= 2u

$2u = 60$

$1u = 60 \div 2$

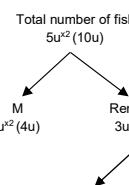
= 30

$7u = 7 \times 30$

= 210

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

Question 3



$5u = 25$

$1u = 25 \div 5$

= 5

Difference = $4u - 1u$

= 3u

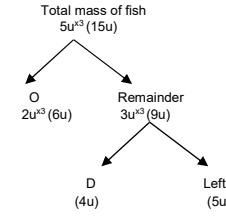
$3u = 3 \times 5$

= 15

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

Answers to Unit 2.4 – Branching

Question 4



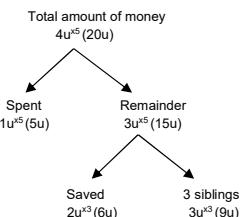
$15u = 600$

$5u = 600 \div 3$

= 200

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

Question 5



$20u = 240$

$1u = 240 \div 20$

= 12

$3 \text{ siblings} = 9u$

$1 \text{ sibling} = 9u \div 3$

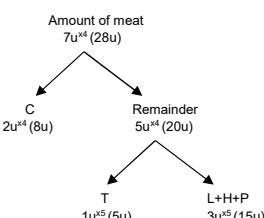
= 3u

$3u = 3 \times 12$

= 36

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

Question 6



Visit the forum page at www.onspunge.com for more challenging problem sums.

Page 27

Answers to Unit 2.4 – Branching

Question 6 (Cont.)

$$P = 15u + 3$$

$$= 5u$$

$$5u = 30$$

$$1u = 30 \div 5$$

$$= 6$$

$$28u = 28 \times 6$$

$$= 168$$

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

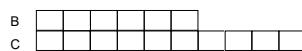
Answers to Unit 2.5 – One Item Unchanged

Let's Get Started 2.5

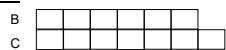
2. What did not change? **The number of buns.**

Model-drawing approach

At first



End



Answers to Unit 2.5 – One Item Unchanged

Unitary approach

At first

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

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

End

$$B = 6u$$

$$C = 7u$$

$$\text{Change in the number of cakes} = 10u - 7u$$

$$= 3u$$

$$3u = 12$$

$$1u = 12 \div 3$$

$$= 4$$

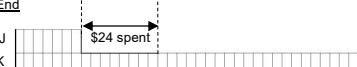
3. What did not change? **The amount of money Keith has.**

Model-drawing approach

At first



End



Answers to Unit 2.5 – One Item Unchanged

Unitary approach

At first

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

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

End

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

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

$$8u = 24$$

$$1u = 24 \div 8$$

$$= 3$$

Ask Yourself

1.

$$\frac{\text{Increase in number of wine glasses}}{\text{Number of wine glasses at first}} = \frac{12}{3}$$

$$= 4$$

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

Answers to Unit 2.5 – One Item Unchanged

Let's Practise 2.5

Question 1

At first

$$D = 2u$$

$$C = 1u$$

End

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

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

$$\text{Changes in } C = 12u - 1u$$

$$= 11u$$

$$11u = 22$$

$$1u = 22 \div 11$$

$$= 2$$

$$\text{Total in the end} = 12u + 2u$$

$$= 14u$$

$$14u = 14 \times 2$$

$$= 28$$

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

Question 2

At first

$$M = 4u$$

$$F = 5u$$

End

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

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

Answers to Unit 2.5 – One Item Unchanged

Question 2 (Cont.)

$$\text{Difference} = 12u - 5u$$

$$= 7u$$

$$7u = 28$$

$$1u = 28 \div 7$$

$$= 4$$

$$12u = 12 \times 4$$

$$= 48$$

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

Question 3

At first

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

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

End

$$P = 3u^{\times 3} (9u)$$

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

$$\text{Difference} = 14u - 9u$$

$$= 5u$$

$$5u = 25$$

$$1u = 25 \div 5$$

$$= 5$$

$$14u = 14 \times 5$$

$$= 70$$

$$21u = 21 \times 5$$

$$= 105$$

$$70 + 105 = 175$$

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

Question 4

At first

$$A = 1u^{\times 4} (4u)$$

$$C = 3u^{\times 4} (12u)$$

End

$$A = 1u^{\times 3} (3u)$$

$$C = 4u^{\times 3} (12u)$$

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

$$= 1u$$

$$1u = 28$$

$$\text{Difference (end)} = 12u - 3u$$

$$= 9u$$

$$9u = 9 \times 28$$

$$= 252$$

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

Answers to Unit 2.5 – One Item Unchanged

Question 5

At first

$$C = 2u$$

$$R = 3u$$

End

$$C = 1u^{\times 2} (2u)$$

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

$$\text{Difference} = 8u - 3u$$

$$= 5u$$

$$5u = 35$$

$$1u = 35 \div 5$$

$$= 7$$

$$8u = 8 \times 7$$

$$= 56$$

There were **56 stalks** of roses in the basket.

Answers to Unit 2.5 – One Item Unchanged

Question 6

At first

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

$$S = 5u^{\times 5} (25u)$$

End

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

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

$$\text{Change in } S = 25u - 8u$$

$$= 17u$$

$$17u = 51$$

$$1u = 51 \div 17$$

$$= 3$$

$$10u = 10 \times 3$$

$$= 30$$

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

Answers to Unit 2.6 – Difference Unchanged

Let's Get Started 2.6

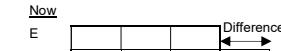
3. What remained the same?
The age difference between Ethan and his mother.

Model-drawing approach

12 years ago



Now



Answers to Unit 2.6 – Difference Unchanged

Unitary approach

12 years ago

$$E = 2u$$

$$M = 3u$$

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

Now

$$E = 3u$$

$$M = 4u$$

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

$$1u = 12$$

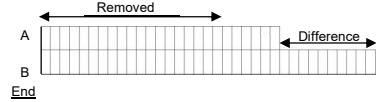
4. What remained the same?

Difference between Basket A and Basket B

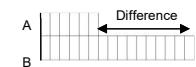
Answers to Unit 2.6 – Difference Unchanged

Model-drawing approach

At First



End



Unitary approach

At first

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

$$B = 7u^x (35u)$$

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

End

$$A = 3u^x (6u)$$

$$B = 8u^x (16u)$$

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

$$19u = 95$$

$$1u = 95 \div 19$$

$$= 5$$

Let's Learn 2.6

Ask Yourself

1. 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.

Answers to Unit 2.6 – Difference Unchanged

Think Further

$$J = 2u$$

$$D = 1u$$

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

$$1u = 12$$

$$12 - 3 = 9$$

In 9 years' time, Jonathan will be twice as old as Diana.

Let's Practise 2.6

Question 1

34 years ago

Now

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

$$W = 3u^x (21u)$$

$$R = 9u^x (18u)$$

$$R = 5u^x (35u)$$

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

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

$$17u = 34$$

$$1u = 34 \div 17$$

$$= 2$$

$$35u = 35 \times 2$$

$$= 70$$

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

Question 2

15 years ago

Now

$$S = 1u$$

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

$$E = 5u$$

$$E = 2u^x (8u)$$

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

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

$$3u = 15$$

$$1u = 15 \div 3$$

$$= 5$$

$$4u = 4 \times 5$$

$$= 20$$

$$31 + 20 = 51$$

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

Question 3

Now

Future

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

$$R = 5u^x (20u)$$

$$F = 7u^x (21u)$$

$$F = 8u^x (32u)$$

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

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

$$12u = 24$$

$$1u = 24 \div 12$$

$$= 2$$

Number of years later = $20u - 9u$

$$= 11u$$

Answers to Unit 2.6 – Difference Unchanged

Question 3 (Cont.)

$$11u = 11 \times 2$$

$$= 22$$

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

Question 4

At first

End

$$Tin = 3u^x (9u)$$

$$Tin = 2u^x (4u)$$

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

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

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

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

$$5u = 150$$

$$1u = 150 \div 5$$

$$= 30$$

$$15u = 15 \times 30$$

$$= 450$$

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

Question 5

At first

End

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

$$B = 4u^x (12u)$$

$$C = 8u^x (40u)$$

$$C = 9u^x (27u)$$

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

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

Difference in the button pins at first and at the end = **13u**

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

Question 6

Clint

Emma

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

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

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

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

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

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

$$20u = 40$$

$$1u = 40 \div 20$$

$$= 2$$

$$24u = 24 \times 2$$

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

$$35u = 35 \times 2$$

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

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

Answers to Review Questions in Chapter 2

Question 1

(a) Total muffins sold = $15 + 20 + 25 = 60$

$$\text{Fraction} = \frac{15}{60} = \frac{1}{4}$$

(b) $\frac{2}{3}$ of choc muffins = $\frac{2}{3} \times 15 = 10$

10 choc muffins = \$18
1 choc muffins = \$1.80
Each chocolate muffins cost **\$1.80**.

Question 2

End

B	3u
G	3u

At first

B	3u	1u
G	3u	80

$$7u = 563 - 80$$

$$= 483$$

$$1u = 483 \div 7$$

$$= 69$$

$$3u = 3 \times 69$$

$$= 207$$

$$3u + 80 = 207 + 80$$

$$= 287$$

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

Question 3

$$3 \text{ days} = \frac{1}{8} T \text{ used}$$

$$1 \text{ day} = \frac{1}{15} T \text{ used}$$

$$9 \text{ days} = \frac{9}{15} T \text{ used}$$

$$\frac{6}{15} T = 36 \text{ kg}$$

$$\frac{1}{15} T = 6 \text{ kg}$$

$$\frac{7}{15} T = 42 \text{ kg}$$

She used **42 kg** of sugar in 7 days.

Question 4

$$\text{Fraction spent} = \frac{1}{4} + \frac{1}{5} = \frac{5}{20} + \frac{4}{20} = \frac{9}{20}$$

$$\text{Fraction of money left} = 1 - \frac{5}{20} = \frac{7}{12}$$

$$7u = 637 + 63$$

$$= 700$$

$$1u = 700 \div 7$$

$$= 100$$

$$2u = 2 \times 100$$

$$= 200$$

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

Answers to Review Questions in Chapter 2

Question 5

End

C	3u
M	3u

At first

C	3u	1u
M	3u	14

$$\begin{aligned} 7u &= 77 - 14 \\ &= 63 \\ 1u &= 63 \div 7 \\ &= 9 \\ \text{Difference} &= 14 - 9 \\ &= 5 \end{aligned}$$

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

Question 6

$$\begin{aligned} S &= 1u \\ D &= 1u \\ C &= 3u \end{aligned}$$

$$\begin{aligned} 3u &= 39 \\ 1u &= 39 \div 3 \\ &= 13 \\ 5u &= 5 \times 13 \\ &= 65 \end{aligned}$$

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

Question 7

$$\begin{aligned} \text{Savings} &= 1 - \frac{1}{4} - \frac{1}{12} - \frac{1}{3} \\ &= \frac{1}{3} \end{aligned}$$

$\frac{1}{3}$ Earnings = 2250

$$\begin{aligned} \text{Earnings} &= 2250 \times 3 \\ &= 6750 \end{aligned}$$

$$\begin{aligned} \text{Mother} &= \frac{1}{4} \times 6750 \\ &= 1687.50 \end{aligned}$$

He gave his mother **\$1687.50**.

Question 8

$$\begin{aligned} \text{Kalisa's} &= 1 - \frac{1}{4} - \frac{1}{12} \\ &= \frac{2}{3} \end{aligned}$$

$$\begin{aligned} \text{Difference} &= \frac{2}{3} - \frac{1}{12} \\ &= \frac{7}{12} \end{aligned}$$

$$\begin{aligned} \frac{7}{12} \text{ Total} &= 602 \\ \frac{1}{12} \text{ Total} &= 602 \times 7 \\ &= 86 \end{aligned}$$

$$\begin{aligned} \text{Total} &= 12 \times 86 \\ &= 1032 \end{aligned}$$

They shared **\$1032**.

Question 9

H	1u	7.5
M	1u	
J	1u	1u

Answers to Review Questions on Chapter 2

Question 9 (Cont.)

$$\begin{aligned} 5u &= 55 - 7.5 \\ &= 47.5 \\ 1u &= 47.5 \div 5 \\ &= 9.5 \\ H &= 9.5 + 7.5 \\ &= 17 \\ \text{Hamid's book cost} & \$17. \end{aligned}$$

Question 10

End

Y	4u
G	4u

At first

Y	4u	1u
G	4u	125

$$9u = 332 - 125$$

$$= 207$$

$$1u = 207 \div 9$$

$$= 23$$

$$5u = 5 \times 23$$

$$= 115$$

He had **115 yellow baskets** for sale at first.

Question 11

$$\begin{aligned} \frac{1}{5} \times 150 &= 120 \\ \text{Difference} &= 120 - 80 \\ &= 40 \end{aligned}$$

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

Question 12

$$\begin{aligned} \text{Aminah} &= 1 - \frac{3}{8} \\ &= \frac{5}{8} \end{aligned}$$

$$\begin{aligned} \frac{5}{8} \times 168 &= 105 \\ \text{Sharon have} & 105 \text{ seashells to Aminah.} \end{aligned}$$

Question 13

$$\begin{aligned} \text{Read} &= \frac{1}{4} + \frac{1}{9} \\ &= \frac{3}{12} \end{aligned}$$

$$\begin{aligned} \text{Unread} &= 1 - \frac{3}{8} \\ &= \frac{5}{8} \end{aligned}$$

$$\begin{aligned} \frac{5}{8} \text{ Total} &= 95 \\ \frac{1}{8} \text{ Total} &= 95 \div 5 \end{aligned}$$

$$= 19$$

$$\begin{aligned} \text{Total} &= 8 \times 19 \\ &= 152 \end{aligned}$$

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

Question 14

$$\begin{aligned} \text{Difference} &= \frac{2}{3} - \frac{1}{4} \\ &= \frac{5}{12} \end{aligned}$$

$$\begin{aligned} \frac{5}{12} \text{ Salary} &= 890 \\ \frac{1}{12} \text{ Salary} &= 890 \div 5 \end{aligned}$$

$$= 178$$

Answers to Review Questions in Chapter 2

Question 14(Cont.)

$$\text{Salary} = 178 \times 12$$

$$= 2136$$

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

Question 15

$$\begin{aligned} \text{Fraction of money spent} &= \frac{1}{12} + \frac{5}{12} \\ &= \frac{2}{3} \end{aligned}$$

$$\begin{aligned} \text{Amount of money left} &= 10 - 2 \\ &= 8 \end{aligned}$$

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

$$\text{Total} = 3 \times 8$$

$$= 24$$

She had **\$24** at first.

Question 16

In the end

L	2u	2u	2u
C	2u		

At first

L	2u	2u	2u	123
C	2u	1u		

} 510

$$9u = 510 - 123$$

$$= 387$$

$$1u = 387 \div 9$$

$$= 43$$

$$3u = 3 \times 43$$

$$= 129$$

$$\text{Difference} = 129 + 123$$

$$= 252$$

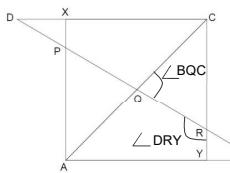
There were **252 more** boxes of love letters than cookies at first.

Chapter 3 Geometry

Answers to Unit 3.1—Angles

Let's Practice 3.1

Question 1



Question 2

- (a) 100°
- (b) 100°
- (c) 80°
- (d) 80°
- (e) 180°
- (f) 180°

Answers to Unit 3.1—Angles

Question 3

$$(b) 52^\circ$$

Question 4

$$\begin{aligned} AC &= 5.3 \text{ cm} \\ BC &= 5.3 \text{ cm} \end{aligned}$$

Question 5

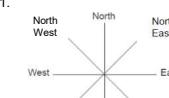
$$\angle ACD = 10^\circ$$

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

Answers to Unit 3.2—8-Point Compass

Let's Get Started

1.



2.

North

3.

South

4.

$\frac{3}{8}$

5.

East

6.

135°

Answers to Unit 3.2 – 8-Point Compass**Let's Learn**

1. 90° to their right for the school that is on the West.
2. The Bakery
3. The Market
4. 225° turn

Think Further

1. 90° to their right for the school that is on the North
2. The Bakery
3. The Market
4. 315° turn

Let's Practice 3.2**Question 1**

- (a) Home
- (b) Sports hall
- (c) Sports hall
- (d) Club
- (e) $\frac{1}{8}$ – turn to her right / $\frac{7}{8}$ – turn to her left
- (f) $\frac{3}{8}$ – turn to her left / $\frac{5}{8}$ – turn to her right

Question 2

- (a) Toy section
- (b) Electrical section
- (c) $\frac{3}{8}$ – turn to his right / $\frac{5}{8}$ – turn to his left
- (d) Shoes section
- (e) Toy section
- (f) 315°

Question 3

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

Question 4

- (a) Theatre, West
- (b) Supermarket South
- (c) Temple, Northwest
- (d) MRT station, Temple
- (e) $\frac{5}{8}$ – turn to his right / $\frac{3}{8}$ – turn to his left, South
- (f) 180° clockwise turn to the left / 180° anticlockwise turn to right, Northeast

Answers to Unit 3.2 – 8-Point Compass**Question 5**

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

Question 6

- (a) 2 squares East, followed by 4 squares South
- (b) Fire station

Chapter 4 Decimals**Answers to Unit 4.1 – Decimals****Let's Get Started 4.1**

1. (a) 6.58 (b) 78.9 (c) 0.079
2. (a) 0.7 (b) 0.6 (c) 0.12
3. tenth
4. hundredth
5. 0.5
6. 0.8
7. (a) 8.3 (b) 16.5 (c) 18.3 (d) 25.0
8. (a) 5.26 (b) 25.65 (c) 46.74 (d) 65.28
9. 0.325, 0.65, 0.8, 0.91
10. (a) 6.853 (b) 4.458

Let's Practise 4.1**Question 1**
2.65 litres**Question 2**
\$15.49**Question 3**
\$86.00**Question 4**
3 m long, 2 m wide**Question 5**
3.9 kg**Question 6**
27.1**Answers to Unit 4.2 – Additional and Subtractions of Decimals****Let's Get Started 4.2**

1. (a) 8.9 (b) 2.49 (c) 7.2 (d) 0.9
(e) 1.29 (f) 123.47

2. (a) 2.1 (b) 3.33 (c) 0.05 (d) 8.8

Let's Practise 4.2

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 \$10.20
 $\$18 - \$8.20 = \$9.80$
 She would have **\$9.80** left.

Question 4
 $\$55.50 - \$19.75 = \$35.75$
 Both items cost \$35.75.
 $\$35.75 - \$25.65 = \$10.10$
 The pencil case cost **\$10.10**.

Question 5
 $\$60 - \$45.95 = \$14.05$
 Natalie had \$14.05 after buying a bag.
 $\$14.05 + \$20 = \$34.05$
 Natalie saved a total of **\$34.05**.

Question 6
 $\$389.75 + \$150.80 + \$45.30 = \585.85
 Chester spent a total of \$585.85
 $\$750 - \$585.85 = \$164.15$
 Chester had **\$164.15** left.

Answers to Unit 4.3 – Multiplication and Division of Decimals**Let's Get Started 4.3**

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

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

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

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

Let's Practise 4.3

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**.

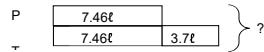
Question 6
 $\$23.40 \div 9 = \2.60
 Each hair clip cost **\$2.60**.

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 Chapter 4

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 **18.6 l** of water.

Question 2

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

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>
$T = 2u^3 (6u)$	$T = 6u$
$C = 5u^3 (15u)$	$C = 15u$
<u>Case 2</u>	
$T = 3u^2 (6u)$	$Total = 6u + 15u + 20u = 41u$

$K = 10u^2 (20u)$ 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.

Answers to Review Questions on Chapter 4

Question 4

<u>Case 1</u>	<u>Summary</u>
$A = 3u^{10} (30u)$	$A = 30u$
$B = 2u^{10} (20u)$	$B = 20u$
<u>Case 2</u>	
$A = 10u^3 (30u)$	$C = 21u$
$C = 7u^3 (21u)$	$Total = 30u + 20u + 21u = 71u$

Difference between Pouch B and Pouch C

$$= 21u - 20u$$

$$= 1u$$

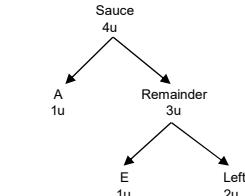
$$1u = 160$$

$$71u = 71 \times 160$$

$$= 11360$$

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

Question 5



$$4u = 10.8$$

$$1u = 10.8 \div 4$$

$$= 2.7$$

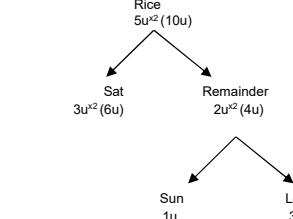
$$2u = 2 \times 2.7$$

$$= 5.4$$

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

Answers to Review Questions on Decimals

Question 6



$$3u = 3.9$$

$$1u = 3.9 \div 3$$

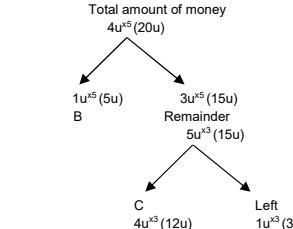
$$= 1.3$$

$$10u = 10 \times 1.3$$

$$= 13$$

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

Question 7



Difference between computer game and board game

$$= 12u - 5u$$

$$= 7u$$

$$7u = 41.65$$

$$1u = 41.65 \div 7$$

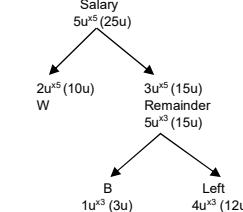
$$= 5.95$$

$$3u = 5.95 \times 3$$

$$= 17.85$$

Caleb had **\$17.85** left.

Question 8



Visit the forum page at www.on sponge.com for more challenging problem sums.

Answers to Review Questions on Decimals

Question 8 (Cont.)

$$10u = 1840$$

$$1u = 1840 \div 10$$

$$= 184$$

$$3u = 3 \times 184$$

$$= 552$$

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

Question 9

$$3u = 0.48$$

$$1u = 0.48 \div 3$$

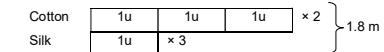
$$= 0.16$$

$$2u = 2 \times 0.16$$

$$= 0.32 \text{ (Flour)}$$

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

Question 10



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

$$= 6u$$

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

$$= 3u$$

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

$$= 9u$$

$$9u = 1.8$$

$$1u = 1.8 \div 9$$

$$= 0.2$$

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

Question 11

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

$$7u = 14$$

$$1u = 14 \div 7$$

$$= 2$$

$$6u = 6 \times 2$$

$$= 12$$

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

Answers to Review Questions on Decimals

Question 12

Item	Quantity of units	\times	Value of each unit (items)	Total Value (items)
S	3u	\times	25	75u
P	4u	\times	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	\times	Value of each item (\$)	Total Value (\$)
R	3u	\times	2.5	7.5u
G	2u	\times	1.20	2.4u
Total	5u			9.9u

$$9.9u = 198$$

$$1u = 198 \div 9.9 \\ = 20$$

$$\text{Difference} = 3u - 2u \\ = 1u$$

The customer bought **20 more** boxes of red than green lamp bulbs.

Question 14

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

$$3u = 12$$

$$1u = 12 \div 3 \\ = 4$$

$$6u = 4 \times 6 \\ = 24$$

Joash used **24 tubes** in all.

Answers to Review Questions on Decimals

Question 15

$$1S + 4N = 33.3$$

$$1S + 1N = 15.75$$

$$3N = 33.3 - 15.75$$

$$= 17.55$$

$$1N = 17.55 \div 3$$

$$= 5.85$$

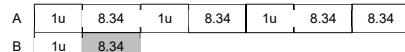
One notebook cost **\$5.85**.

Question 16

In the end



At first



$$4 \times 8.34 = 33.36$$

$$4u = 50.4 - 33.36$$

$$= 17.04$$

$$1u = 17.04 \div 4$$

$$= 4.26$$

$$3u = 3 \times 4.26$$

$$= 12.78$$

$$A (\text{at first}) = 12.78 + 33.36$$

$$= 46.14$$

The mass of Bag A was **46.14 kg** at first.

Question 17

$$\text{Mass of 6 packets of figs} = 6 \times 0.35$$

$$= 2.1$$

$$\text{Mass of 6 packets of cranberries} = 4.35 - 2.1$$

$$= 2.25$$

$$\text{Mass of 1 packet of cranberries} = 2.25 \div 6$$

$$= 0.375$$

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

Question 18

$$\text{Rope B} = 4.68 + 2.95$$

$$= 7.63$$

$$\text{Rope C} = 7.63 + 7.63$$

$$= 15.26$$

Answers to Review Questions on Decimals

Question 18 (Cont.)

$$\text{Total mass} = 2.95 + 7.63 + 15.26$$

$$= 25.84$$

$$\approx 25.8$$

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

Question 19

$$3 \text{ pens} = 3 \times 2.05$$

$$= 6.15$$

$$2 \text{ notebooks} = 2 \times 2.25$$

$$= 4.5$$

$$\text{Total cost} = 6.15 + 4.50$$

$$= 10.65$$

$$\text{Change} = 50 - 10.65$$

$$= 39.35$$

He would receive **\$39.35** change.

Question 20

$$\text{Distance between 2 flag poles} = 3.06 + 2$$

$$= 1.53$$

$$\text{Distance between the 1st and 6th pole} = 1.53 \times 5$$

$$= 7.65$$

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

Chapter 5 Graphs

Answers to Unit 5.1 – Interpreting Graphs

5.1 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 5.1

Question 1

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

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

(b) \$469

$$179 + 290 = 469$$

(c) Stall A and C

$$\text{Stall A} = 123 + 56$$

$$= 179$$

Visit the forum page at www.onspunge.com for more challenging problem sums.

Page 39

Answers to Unit 5.1 – Interpreting Graphs

Question 1 (Cont.)

$$\text{Stall B} = 212 + 78$$

$$= 290$$

$$\text{Stall C} = 112 + 67$$

$$= 179$$

$$\text{Stall D} = 178 + 61$$

$$= 239$$

(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**

Total amount (Max) = 450

Total amount (Min) = 420

Difference = 450 - 420

$$= 30$$

(c) **210 plates**

$$420 \div 2 = 210$$

(d) **70 plates**

Number of plates of curry rice sold = 1u

Number of plates of duck noodles sold = 2u

Total plates sold = 3u

$$210 \div 3 = 70$$

Question 3

(a) **\$8**

Using Monday data,

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

$$= 1950$$

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

$$= 8$$

(b) **\$26 800**

$$(750 + 600 + 2000) \times 8 = 26 \text{ } 800$$

(c) **\$70 800**

$$32 \text{ } 000 + 38 \text{ } 800 = 70 \text{ } 800$$

(d) **150 people**

Total people on Sunday = 38 800 + 8

$$= 4850$$

Total people for Movie A and Movie B (Sun)

$$= 4850 - 3500$$

$$= 1350$$

Answers to Unit 5.1 – Interpreting Graphs**Question 3 (Cont.)**

Movie A (Sun) = 1u

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,

Movie B (Sun) = 8×150

$$= 1200$$

$$\begin{aligned} \text{Total people on Saturday} &= 32\,000 \div 8 \\ &= 4\,000 \end{aligned}$$

$$\begin{aligned} \text{Total people for Movie B (Sat)} &= 4\,000 - 2\,700 - 300 \\ &= 1\,000 \end{aligned}$$

Question 4**(a) \$5**

Using Laundromat data,

$$\begin{aligned} \text{Total mass} &= 200 + 200 + 150 + 20 \\ &= 570 \end{aligned}$$

For Laundromat, Cost to wash 1 kg of laundry
Total amount collected

$$\begin{aligned} \text{Total mass} &= 2850 \\ &= 570 \\ &= 5 \end{aligned}$$

(b) 85 kgFor Drydays, total mass of laundry
 $= 2\,400 \div 5$

$$= 480$$

Mass of socks (Drydays)

$$= 480 - 150 - 220 - 100$$

$$= 10$$

$$\begin{aligned} \text{Total mass of socks (all 5)} &= 10 + 20 + 15 + 30 + 10 \\ &= 85 \end{aligned}$$

(c) 100 kgFor 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 $\frac{2}{3} \times 150 = 100$ **Answers to Unit 5.1 – Interpreting Graphs****Question 4 (Cont.)****(d) \$15 675**

$$\begin{aligned} (100 + 150 + 150 + 15) \times 5 &= 2075 \\ \text{CleanFast collected a total of } \$2075. \end{aligned}$$

$$\begin{aligned} (140 + 270 + 900 + 10) \times 5 &= 6600 \\ \text{QuickSpin collected a total of } \$6600. \\ 2400 + 2850 + 2075 + 1750 + 6600 &= 15\,675 \end{aligned}$$

(e) 850 kg

$$\begin{aligned} \text{Most shirts washed} &= 900 \\ \text{Least shirts washed} &= 50 \\ \text{Biggest Difference} &= 900 - 50 \\ &= 850 \end{aligned}$$

Question 5**(a) \$3**

$$\begin{aligned} \text{For Edmund, Amount spent on pencils + Amount spent on erasers + Amount spent on files} &= \$23.80 \\ 6 \times 0.30 + 2 \times 0.50 + \text{Amount spent on files} &= 23.80 \\ 23.80 - 1.80 - 1.00 &= 21 \\ \$21 \text{ was spent on the files.} \\ 21 \div 7 &= 3 \end{aligned}$$

(b) \$33.50

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

(c) 5 files

$$\begin{aligned} \text{For Cathy, Amount spent on pencils + Amount spent on erasers + Amount spent on files} &= \$17.90 \\ 17.90 - 2.40 - 0.50 &= 15 \\ \text{She spent } \$15 \text{ on files.} \\ 15 \div 3 &= 5 \end{aligned}$$

(d) Brian

$$\begin{aligned} \text{Number of files (Brian)} &= 14 - 11 - 2 \\ &= 1 \\ \text{Brian} &= 11 \times 0.30 + 2 \times 0.50 + 1 \times 3 \\ &= 7.30 \\ \text{Cathy} &= 8 \times 0.30 + 1 \times 0.50 + 5 \times 3 \\ &= 17.90 \end{aligned}$$

(e) \$98.10

$$\begin{aligned} \text{Abel} &= 17 \times 0.30 + 3 \times 0.50 + 3 \times 3 \\ &= 15.60 \\ 15.60 + 7.30 + 17.90 + 33.50 + 23.80 &= 98.10 \end{aligned}$$

Answers to Unit 5.2 – Line Graphs**Let's Practise 5.2****Question 1****(a) 9 a.m.****(b) 6 a.m.****(c) 5200 cars**

$$\begin{aligned} \text{Number of cars from 6 a.m. to 11 a.m.} &= 100 + 500 + 1300 + 1700 + 900 + 700 \\ &= 5\,200 \end{aligned}$$

(d) 7 a.m. to 8 a.m.**(e) 9 a.m. to 10 a.m.****Question 2****(a) 134****(b) May****(c) Jan to Feb, Feb to Mar**

$$\begin{aligned} \text{Jan to Feb} &= \text{increase by 22} \\ \text{Feb to Mar} &= \text{increase by 22} \\ \text{Mar to Apr} &= \text{decrease by 27} \\ \text{Apr to May} &= \text{increase by 72} \\ \text{May to June} &= \text{decrease by 25} \end{aligned}$$

(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**

$$\begin{aligned} \text{When temperature } = 14^\circ\text{C, Time is 7.40 a.m.} \\ \text{When temperature } = 20^\circ\text{C, Time is 8.10 a.m.} \end{aligned}$$

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

(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**

$$\begin{aligned} \text{Amount of water at 10 a.m.} - \text{Amount of water at 9 a.m.} &= 450 - 220 = 230 \end{aligned}$$

(c) 12.30 p.m.**(d) 4 h 30 min**

$$\begin{aligned} \text{1st time at 285 litres, time is 7 a.m.} \\ \text{2nd time at 285 litres, Time is 11:30 a.m.} \\ \text{Elapsed time is 4 h 30 min.} \end{aligned}$$

Answers to Unit 5.2 – Line Graphs**Question 4 (Cont.)****(e) 10 a.m. to 11 a.m., 12 noon to 1 p.m.**

$$7 \text{ a.m. to 8 a.m. (decrease by 15 litres)}$$

$$8 \text{ a.m. to 9 a.m. (decrease by 50 litres)}$$

$$9 \text{ a.m. to 10 a.m. (increase by 230 litres)}$$

$$10 \text{ a.m. to 11 a.m. (decrease by 130 litres)}$$

$$11 \text{ a.m. to 12 noon. (decrease by 70 litres)}$$

$$12 \text{ noon to 1 p.m. (decrease by 130 litres)}$$

Question 5**(a) 1700 houses**

$$\begin{aligned} \text{Increase from 2008 to 2009} &= 1200 - 1100 \\ &= 100 \end{aligned}$$

$$\begin{aligned} \text{Increase from 2009 to 2010} &= 5 \times 100 \\ &= 500 \end{aligned}$$

$$\begin{aligned} \text{Number of private houses sold in 2010} &= 1200 + 500 = 1700 \end{aligned}$$

(b) 2000 houses

$$\begin{aligned} \text{Number of private houses sold in 2011} &= 2 \times \text{number of private houses sold in 2012} \\ &= 2 \times 1000 \\ &= 2000 \end{aligned}$$

(c) Years 2009 and 2013

$$\text{Year 2008} = 1100$$

$$\text{Year 2009} = 1200$$

$$\text{Year 2010} = 1700$$

$$\text{Year 2011} = 2000$$

$$\text{Year 2012} = 1000$$

$$\text{Year 2013} = 1200$$

(d) 5900 houses

$$\begin{aligned} \text{Total number of houses (2010 to 2013)} &= 1700 + 2000 + 1000 + 1200 \\ &= 5900 \end{aligned}$$

Question 6**(a) 6 seconds****(b) 8 m****(c) 20 seconds****(d) 10 seconds**

$$\text{1st time ball is at 7 m} \rightarrow 00:00:04$$

$$\text{2nd time ball is at 7 m} \rightarrow 00:00:14$$

$$\text{Time elapsed} = 14 - 4$$

$$= 10$$

(e) 8 seconds

$$\text{Ball is at 0 m} \rightarrow 8 \text{ seconds}$$

$$\text{Ball increases height to 7.5 m} \rightarrow 16 \text{ seconds}$$

$$\text{Time elapsed} = 16 - 8$$

$$= 8$$

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Page 41

Answers to Unit 5.2 – Line Graphs

Question 6 (Cont.)

(f) 15.5 m

The ball falls from 10m to ground (8 s) = 10 m
The ball bounces from ground to 5.5 m (12 s)
= 5.5 m
Total = $10 + 5.5$
= 15.5

Answers to Review Question on Chapter 5

Question 1

(a) June

(b) July savings = 10
October savings = 45
Difference = $45 - 10$
= 35

Question 2

Month	Sale	Change
Nov	250	
Dec	300	↑50
Jan	200	↓100
Feb	150	↓50
Mar	100	↓50
Apr	50	↓50

The sale of the pots decreased the most between December and January.

(b)

Month	Sale	Amount collected (\$)
Nov	250	$250 \times 29 = 7250$
Dec	300	$300 \times 29 = 8700$
Jan	200	$200 \times 29 = 5850$
Feb	150	$150 \times 29 = 4300$
Mar	100	$100 \times 29 = 2900$
Apr	50	$50 \times 29 = 1450$

Total amount collected

$$= 7250 + 8700 + 5850 + 4300 + 2900 + 1450 \\ = 30\,450$$

The total amount collected is **\$30 450**.

Question 3

(a) Difference = $700 - 325$
= 375

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

(b) Total = $700 + 325 + 450 + 825 + 600$
= 2900

They spent a total of **\$2900** in a month.

Answers to Review Question on Chapter 5

Question 4

(a)

Month	Sale
Apr	150
May	75
Jun	200
Jul	125
Aug	225

$$\text{Difference} = 150 - 75 \\ = 75$$

75 more bedsheets were sold in April than in May.

(b)

Month	Sale	Amount collected (\$)
May	75	$75 \times 24 = 1800$
Jun	200	$200 \times 24 = 4800$
Jul	125	$125 \times 24 = 3000$
Aug	225	$225 \times 24 = 5400$

$$\text{Total amount collected} = 1800 + 4800 + 3000 + 5400 \\ = 15\,000$$

The total amount collected would be **\$15 000**.

Question 5

$$\text{No. of children} = 159 + 29 + 36 \\ = 224$$

224 children read at least 2 books in a week.

Question 6

Class	Amount of clothings donated	No. of children
4A	266	$266 \div 7 = 38$
4B	224	$224 \div 7 = 32$
4C	238	$238 \div 7 = 34$

$$\text{Total} = 38 + 32 + 34 \\ = 104$$

There were 104 children altogether in the 3 classes.

Chapter 6 Area and Perimeter

Answers to Unit 6.1 – Finding Area and Perimeter with Given Sides

Let's Practise 6.1

Question 1

(a) Area of Square A = $9 \text{ cm} \times 9 \text{ cm}$

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

$$\text{Perimeter of Square A} = 4 \times 9 \text{ cm} \\ = 36 \text{ cm}$$

Answers to Unit 6.1 – Finding Area and Perimeter with Given Sides

(b) Area of Rectangle B = $8 \text{ m} \times 4 \text{ m}$
= 32 m^2

$$\text{Perimeter of Rectangle B} = 8 \text{ m} + 4 \text{ m} + 8 \text{ m} + 4 \text{ m} \\ = 24 \text{ m}$$

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

$$\text{Perimeter of Rectangle C} = 17 \text{ m} + 9 \text{ m} + 17 \text{ m} + 9 \text{ m} \\ = 52 \text{ m}$$

Answers to Unit 6.1 – Finding Area and Perimeter with Given Sides

Question 4 (Cont.)

(b) Perimeter of garden = $64 \text{ m} + 2$
= 32 m

$$\text{Length of garden} = 32 \text{ m} \div 4$$

$$= 8 \text{ m}$$

$$\text{Area of garden} = 8 \text{ m} \times 8 \text{ m} \\ = 64 \text{ m}^2$$

The area of the garden is **64 m²**.

Question 5

Length of CD = 2u.

$$\text{Distance covered walked by the ant} = 2u + 2u + 1u \\ = 5u$$

$$5u = 37.5$$

$$1u = 37.5 \div 5$$

$$= 7.5$$

$$2u = 2 \times 7.5$$

$$= 15$$

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.

$$\text{Total length of wire} = 1u + 3u + 1u + 3u \\ = 8u$$

$$8u = 96$$

$$1u = 96 \div 8$$

$$= 12$$

(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**.

Question 4

(a) $2 \times \text{length of field} = 20 \text{ m} + 20 \text{ m}$

$$= 40 \text{ m}$$

$$2 \times \text{breadth of field} = 64 \text{ m} - 40 \text{ m}$$

$$= 24 \text{ m}$$

$$\text{Breadth of field} = 24 \text{ m} \div 2$$

$$= 12 \text{ m}$$

The breadth of the field is **12 m**.

Answers to Unit 6.2 – Finding Sides with Given Area or Perimeter

Let's Practise 6.2

Question 1

(a)
Area of Square A = $1u \times 1u$
 $1u \times 1u = 49$ (7×7)
 $1u = 7$

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 = $1u \times 1u$
 $1u \times 1u = 25$ (5×5)
 $1u = 5$
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 cm^2

(b)
Length of Square E = $24 \text{ cm} \div 4$
= 6 cm
Area of Square E = $6 \text{ cm} \times 6 \text{ cm}$
= 36 cm^2

(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 cm^2

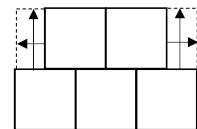
Answers to Unit 6.2 – Finding Sides with Given Area or Perimeter

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

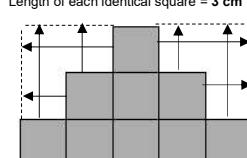
Area of one square = $80 \text{ cm}^2 \div 5$
= 16 cm^2
Length of each square = 4 cm



$12 \text{ cm} + 12 \text{ cm} + 8 \text{ cm} + 8 \text{ cm} = 40 \text{ cm}$
The perimeter of the figure is **40 cm**.

Question 5

Area of each identical square = $81 \text{ cm}^2 \div 9$
= 9 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 cm^2 ($1u$)

Answers to Unit 6.2 – Finding Sides with Given Area or Perimeter

Question 6 (cont.)

Area of Square B = $4 \times 16 \text{ cm}^2$
= 64 cm^2
Length of Square B = 8 cm

Area of Square C = $9 \times 16 \text{ cm}^2$
= 144 cm^2
Length of Square C = 12 cm

Area of Square D = $16 \times 16 \text{ cm}^2$
= 256 cm^2
Length of Square D = 16 cm

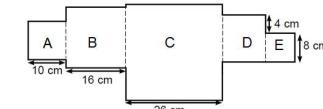
Perimeter of Square A = $4 \times 4 \text{ cm}$
= 16 cm
Perimeter of Square B = $4 \times 8 \text{ cm}$
= 32 cm

Perimeter of Square C = $4 \times 12 \text{ cm}$
= 48 cm
Perimeter of Square D = $4 \times 16 \text{ cm}$
= 64 cm

$16 \text{ cm} + 32 \text{ cm} + 48 \text{ cm} + 64 \text{ cm} = 160 \text{ cm}$
The length of wire is **160 cm**.

Answers to Unit 6.3 – Area and Perimeter of Composite Figures

Question 2 (cont.)



(from left)

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

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

Area of Square C = $26 \text{ cm} \times 8 \text{ cm}$
= 676 cm^2

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

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

Total area of figure
= $100 \text{ cm}^2 + 256 \text{ cm}^2 + 676 \text{ cm}^2 + 144 \text{ cm}^2 + 64 \text{ cm}^2$
= **1240 cm²**

The area of the figure is **1240 cm²**.

Question 3

Area of land used for strawberries
= $9 \text{ m} \times 18 \text{ m}$
= 162 m^2

Area of land used for herbs = $5 \text{ m} \times 5 \text{ m}$
= 25 m^2
Total area of land used = $162 \text{ m}^2 + 25 \text{ m}^2$
= 187 m^2

Area of plot of land = $28 \text{ m} \times 25 \text{ m}$
= 700 m^2
Area of plot of land still not used
= $700 \text{ m}^2 - 187 \text{ m}^2$
= 513 m^2

513 m² of the plot of land is still unused.

Question 4

Area of 1 rectangle = $600 \text{ cm}^2 \div 8$
= 75 cm^2

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	✓

Answers to Unit 6.3 – Area and Perimeter of Composite Figures

Question 4 (Cont.)

Length of each rectangle = 15 cm
Breadth of each rectangle = 5 cm
Length of figure = $6 \times 5 \text{ cm}$
= 30 cm
Breadth of figure = $5 \text{ cm} + 15 \text{ cm}$
= 20 cm
Perimeter of figure = $30 \text{ cm} + 30 \text{ cm} + 20 \text{ cm} + 20 \text{ cm}$
= 100 cm
The perimeter of the figure is **100 cm**.

Question 5

Area of one of the rectangles = $20 \text{ m} \times 10 \text{ m}$
= **200 m²**

Question 6

Area of large rectangle = $10 \text{ cm} \times 6 \text{ cm}$
= 60 cm²
Area of overlapped 4 squares = $4 \times 1 \text{ cm}^2$
= 4 cm²
Area of shaded region = $60 \text{ cm}^2 - 4 \text{ cm}^2 = 4 \text{ cm}^2$
= 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 = $2 \text{ m} + 10 \text{ m} + 12 \text{ m}$
= 24 m
Breadth of park = $6 \text{ m} + 2 \text{ m} + 2 \text{ m}$
= 10 m
Area of park = $24 \text{ m} \times 10 \text{ m}$
= 240 m²
Area of shaded region = $240 \text{ m}^2 - 72 \text{ m}^2$
= 168 m²
The area of shaded region is **168 m²**.

Answers to Unit 6.3 – Area and Perimeter of Composite Figures

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 = $9 \text{ m} + 2 \text{ m} + 2 \text{ m}$
= 13 m

Breadth of park with pavement = $7 \text{ m} + 2 \text{ m} + 2 \text{ m}$
= 11 m

Area of park with pavement = $13 \text{ m} \times 11 \text{ m}$
= 143 m²

Area of pavement = $143 \text{ m}^2 - 63 \text{ m}^2$
= 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 = $2 \times 4 \text{ cm}$
= 8 cm

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

Question 10

(a) Total distance travelled = $4 \text{ cm} + 2 \text{ cm} + 2 \text{ cm} + 2 \text{ cm} + 4 \text{ cm} + 2 \text{ cm} + 4 \text{ cm} + 2 \text{ cm} = 22 \text{ cm}$

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

(b) Area of 1st step = $14 \text{ cm} \times 2 \text{ cm}$
= 28 cm²

Area of 2nd step = $10 \text{ cm} \times 2 \text{ cm}$
= 20 cm²

Area of 3rd step = $6 \text{ cm} \times 2 \text{ cm}$
= 12 cm²

Area of 4th step = $4 \text{ cm} \times 2 \text{ cm}$
= 8 cm²

Total area of the shaded region = $28 \text{ cm}^2 + 20 \text{ cm}^2 + 12 \text{ cm}^2 + 8 \text{ cm}^2$
= 68 cm²

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

Answers to Unit 6.3 – Area and Perimeter of Composite Figures

Question 11

Length of 2 strokes = $20 \text{ cm} - 14 \text{ cm}$

= 6 cm

Perimeter

= $30 \text{ cm} + 20 \text{ cm} + 30 \text{ cm} + 20 \text{ cm} + 6 \text{ cm} + 6 \text{ cm}$
= 112 cm

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

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 cm²

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

Answers to Unit 6.4 – Area and Perimeter with Proportional Sides

Let's Practise 6.4

Question 1

Unitary approach

$$\begin{array}{l} L = 3u \\ L = 3u \\ B = 1u \\ B = 1u \\ \hline \end{array} \quad \left. \begin{array}{l} \\ \\ \\ \end{array} \right\} 128$$

Total = 8u

Each rectangle has – 2 lengths
– 2 breadths

8u = 128

$$(B) 1u = 128 \div 8$$

$$= 16$$

$$(L) 3u = 16 \times 3$$

$$= 48$$

$$\begin{array}{l} \text{Area of rectangle} = 16 \times 48 \\ = 768 \end{array}$$

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

Question 2

Let the length of Square A = 1u

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

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

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

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

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

Question 3

$$\begin{array}{l} \text{Perimeter} \\ \text{Sq} = 2u^2 (4u) \\ \text{Rec} = 7u^2 (14u) \\ \hline \end{array} \quad \begin{array}{l} \text{Rectangle} \\ B = 3u \\ L = 4u \\ \text{Total Perimeter} = 7u + 7u \\ = 14u \end{array}$$

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

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

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

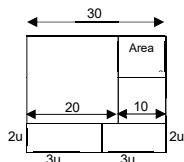
$$\begin{array}{l} 1u = 40 \div 4 \\ = 10 \end{array}$$

Answers to Unit 6.4 – Area and Perimeter with Proportional Sides

Question 3 (Cont.)

$$\begin{aligned}\text{Breadth of rectangle } (3u) &= 3 \times 10 \\ &= 30 \\ \text{The breadth of rectangle is } 30 \text{ cm.}\end{aligned}$$

Question 4



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

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

$$\begin{aligned}\text{Length of 1 big square} &= 10 \text{ cm} + 10 \text{ cm} \\ &= 20 \text{ cm}\end{aligned}$$

$$\begin{aligned}\text{Length of figure} &= 10 \text{ cm} + 20 \text{ cm} \\ &= 30 \text{ cm}\end{aligned}$$

$$\begin{aligned}\text{Length of 1 rectangle} &= 30 \text{ cm} + 2 \\ &= 15 \text{ cm}\end{aligned}$$

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

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

$$\begin{aligned}1u &= 15 \text{ cm} \div 3 \\ &= 5 \text{ cm}\end{aligned}$$

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

$$\begin{aligned}2u &= 5 \text{ cm} \times 2 \\ &= 10 \text{ cm}\end{aligned}$$

$$\begin{aligned}\text{Area of 1 rectangle} &= 15 \text{ cm} \times 10 \text{ cm} \\ &= 150 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}\text{Area of 1 big square} &= 20 \text{ cm} \times 20 \text{ cm} \\ &= 400 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}\text{Area of figure} &= 100 + 100 + 400 + 150 + 150 \\ &= 900\end{aligned}$$

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	✓

$$\begin{aligned}\text{Perimeter} &= 15 \text{ cm} + 15 \text{ cm} + 9 \text{ cm} + 9 \text{ cm} \\ &= 48 \text{ cm}\end{aligned}$$

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

Answers to Unit 6.4 – Area and Perimeter with Proportional Sides

Question 6

ABCD

$$B = 6u$$

$$L = 6u$$

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

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

$$= 6u$$

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

$$= 6u$$

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

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

$$= 6 \text{ cm}$$

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

$$\begin{aligned}6u &= 6 \times 6 \text{ cm} \\ &= 36 \text{ cm}\end{aligned}$$

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

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

$$= 12 \text{ cm}$$

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

$$= 24 \text{ cm}$$

$$\begin{aligned}\text{Area of } B &= 12 \text{ cm} \times 24 \text{ cm} \\ &= 288 \text{ cm}^2\end{aligned}$$

The area of B is **288 cm²**.

Answers to Unit 6.5 – Area and Perimeter of Squares using Guess and Check

Let's Practise 6.5

Question 1

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

$$\begin{aligned}\text{Perimeter} &= 9 + 9 + 9 + 3 + 12 + 12 + 12 + 6 \\ &= 27 + 3 + 36 + 6 \\ &= 72\end{aligned}$$

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**.

Answers to Unit 6.5 – Area and Perimeter of Squares using Guess and Check

Question 3

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

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

$$= 44 \text{ cm}$$

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
$7 \times 7 = 49$	$15 \times 15 = 225$	$225 + 49 = 274$	✗
$6 \times 6 = 36$	$14 \times 14 = 196$	$196 + 36 = 232$	✗
$5 \times 5 = 25$	$13 \times 13 = 169$	$169 + 25 = 194$	✓

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
$12 \times 2 = 24$	$2 \times 2 = 4$	$24 + 4 = 28$	✗
$8 \times 2 = 16$	$3 \times 2 = 6$	$16 + 6 = 22$	✗
$6 \times 2 = 12$	$4 \times 2 = 8$	$12 + 8 = 20$	✓

4 squares wide

6 squares long

Answers to Review Questions on Chapter 6

Question 1

$$\text{Area of rectangle} = 20 \text{ cm} \times 16 \text{ cm}$$

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

Area of the shaded part of the figure

$$= 320 \text{ cm}^2 - 150 \text{ cm}^2$$

$$= 170 \text{ cm}^2$$

Question 2

$$\text{Length of small square} = 12 \text{ cm} \div 3$$

$$= 4 \text{ cm}$$

Perimeter

$$\begin{aligned}&= 12 \text{ cm} + 12 \text{ cm} + 4 \text{ cm} + 4 \text{ cm} + 20 \text{ cm} + 12 \text{ cm} + 4 \text{ cm} \\ &= 72 \text{ cm}\end{aligned}$$

Visit the forum page at www.onspunge.com for more challenging problem sums.

Answers to Review Questions on Chapter 6

Question 3

$$\text{Area of square C} = 8 \text{ cm} \times 8 \text{ cm}$$

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

$$\text{Area of rectangle B} = 2 \times 64 \text{ cm}^2$$

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

$$\text{Area of rectangle A} = 3 \times 128 \text{ cm}^2$$

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

$$\text{Total area of figure} = 64 \text{ cm}^2 + 128 \text{ cm}^2 + 384 \text{ cm}^2$$

$$= 576 \text{ cm}^2$$

Question 4

$$\text{Length of each square} = 36 \text{ cm} \div 3$$

$$= 12 \text{ cm}$$

$$\text{Area of rectangle} = 12 \text{ cm} \times 10 \text{ cm}$$

$$= 120 \text{ cm}^2$$

Question 5

$$\text{Area of big rectangle} = 15 \text{ cm} \times 12 \text{ cm}$$

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

$$\text{Area of shaded rectangle} = 6 \text{ cm} \times 2 \text{ cm}$$

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

$$\text{Area of the unshaded part} = 180 \text{ cm}^2 - 12 \text{ cm}^2$$

$$= 168 \text{ cm}^2$$

Question 6

$$\text{Area of square} = 7 \text{ cm} \times 7 \text{ cm}$$

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

$$\text{Area of rectangle} = 2 \times 49 \text{ cm}^2$$

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

$$\text{Area of the whole figure} = 49 \text{ cm}^2 + 98 \text{ cm}^2$$

$$= 147 \text{ cm}^2$$

Question 7

$$\text{Area of rectangle after 1st fold} = 2 \times 25 \text{ cm}^2$$

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

$$\text{Area of square before fold} = 2 \times 50 \text{ cm}^2$$

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

$$100 = 10 \times 10$$

$$\text{Length of paper unfolded} = 10 \text{ cm}$$

$$= 40 \text{ cm}$$

Question 8

$$\text{Area of 1 square} = 256 \text{ cm}^2 \div 4$$

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

$$64 = 8 \times 8$$

$$\text{Length of each square} = 8 \text{ cm}$$

$$\text{Perimeter of figure} = 16 \text{ cm} + 24 \text{ cm} + 16 \text{ cm} + 24 \text{ cm}$$

$$= 80 \text{ cm}$$