Chapter 1 More than/Less than

**Unit 1.1 – More Than/Less Than (Model Drawing)**

**Qn 2**

G – Gave, L – Left

\[
\begin{align*}
9 \quad & = \quad 8 \\
4 \quad & = \quad 9 \\
\frac{1}{2} \quad & = \quad \frac{9}{18} \\
4 \quad & \times \quad 36 \quad = \quad 16 \\
\end{align*}
\]

\[G = 16 \quad L = 36 - 16 = 20\]

**Chocolate**

\[8U \quad (G) \quad 10U \quad (L) \quad 36\]

**Banana**

\[9U \quad (G) \quad 9U \quad (L)\]

**Left**

\[10U \quad 20\]

\[9U \quad 25\]

1U→5

Total chocolate muffins at first → 18U + 36 → (18 \times 5) + 36 = 126

**Qn 3**

60\% = \frac{3}{5}

25\% of $72

\[
\begin{align*}
\frac{3}{5} \quad & \times \quad 120 \quad = \quad 72 \\
\frac{1}{4} \quad & \times \quad 72 \quad = \quad 18 \\
$120 - $72 = $48 & \quad $72 - $18 = $54
\end{align*}
\]

Charles

\[x \quad x \quad x \quad$120\]

Benedict

\[-$72 \quad $48 \]

\[+$48 \quad +$72\]

\[+$48 \quad +$18 \quad $20 \quad +$54\]

**Qn 10**

Green

\[\quad \quad \quad \quad \quad 112\]

Blue

\[\rightarrow \quad 16\% \quad of \quad total\]

Red

\[
\begin{align*}
4 \quad & \rightarrow \quad 16\% \quad total \\
\rightarrow \quad & \quad 4\% \quad total
\end{align*}
\]

Total

\[11 \quad \rightarrow \quad 44\% \quad total\]

100\% - 44\% = 56\%

56\% → 112

1\% → 2

Total in bag → 100\% → 100 \times 2 = 200

**Qn 11**

\[\frac{2}{3} \quad \times \quad 180 = 120\]

**Triangles**

\[180\]

\[\rightarrow \quad 15\% \quad of \quad total\]

**Rectangles**

\[120\]

\[\quad \rightarrow \quad 15\% \quad total\]

\[\rightarrow \quad 5\% \quad total\]

\[8\]

\[\rightarrow \quad 40\% \quad total\]

100\% - 40\% = 60\%

60\% → 300

15\% → 75

Total number of triangles → 75 + 180 = 255

**Qn 14**

At first

Alan

\[1U \quad -$140 \quad -$200\]

Kenneth

\[+$140 \quad +$120\]

\[3U\]

\[2U \quad \rightarrow \quad $140 + $120 \quad = \quad $260\]

\[1U \quad \rightarrow \quad $130\]

Total at first → 1U + $340 + 1U + $140 → 2U + $480 → (2 \times $130) + $480 = $740

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Qn 15
End

<table>
<thead>
<tr>
<th></th>
<th>2/5</th>
<th></th>
<th>120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girls</td>
<td></td>
<td>Boys</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

At first

Girls: 120 + 80 = 200
Boys: 40 total

Therefore,

Total → 13 + 300 → 820
13 → 520
8 → 40

Boys at first → 8 → (8 x 40) = 320

Qn 16

(a) May spent $1700
(b) Jenny spent $500
(c) May has $1700 + $400 = $2100
(d) Jenny has $800

Qn 17

<table>
<thead>
<tr>
<th></th>
<th>2/5</th>
<th></th>
<th>120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benedict</td>
<td></td>
<td>Jeremy</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Benedict: 120 + 120 = 240
Jeremy: 8 x 360 = 2880

Each at first

Benedict → $120 + $1080 = $1200
Jeremy → $120 x 3 = $360

Chapter 2 Patterns

Unit 2.1 – Equal Intervals

Qn 4

<table>
<thead>
<tr>
<th>Fig.</th>
<th>No. of squares</th>
<th>No. of triangles</th>
<th>Perimeter</th>
<th>No. of sticks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>4</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>6</td>
<td>14</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>8</td>
<td>18</td>
<td>29</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>10</td>
<td>18</td>
<td>34</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>16</td>
<td>20</td>
<td>34</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>18</td>
<td>22</td>
<td>36</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>20</td>
<td>24</td>
<td>38</td>
</tr>
</tbody>
</table>

(b) Perimeter for Figure 50 → 6 + (49 x 4)
   = 6 + 196 = 202 units

(c) No. of sticks for figure 100 → 8 + (99 x 7)
   = 8 + 693 = 701 sticks

(d) 254 - 6 = 248
248 ÷ 4 = 62 squares
Figure No = 62 + 1 = 63
No. of squares = 63

Qn 8

(a) Total seats → (4 x 4) + 2 = 18 seats
(b) Total seats → (20 x 4) + 2 = 82 seats
(c) Total seats → (100 x 4) + 2 = 402 seats
(d) 370 - 2 = 368
368 + 4 = 92
Diagram 92 could seat 370 students

Qn 9

(a)

<table>
<thead>
<tr>
<th>Block.</th>
<th>1-T</th>
<th>2-T</th>
<th>3-T</th>
<th>4-T</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>14</td>
<td>18</td>
<td>22</td>
</tr>
</tbody>
</table>

(b) Perimeter of a 20-T block → 10 + (19 x 4)
   = 10 + 76 = 86cm

(c) Perimeter of a 100-T block → 10 + (99 x 4)
   = 10 + 396
   = 406cm

(d) 106 - 10 = 96
96 ÷ 4 = 24
24 + 1 = 25-T block
No. of squares → 25 x 4 = 100 squares

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**Unit 2.2 – Square Numbers**

Qn 1 (a) 
| Diagram, n | 1 | 2 | 3 | 4 | 5 |
| No. of shaded squares, S | 1 | 5 | 9 | 13 | 17 |
| No. of unshaded squares | 0 | 4 | 16 | 36 | 64 |
| Total no. of squares, T | 1 | 9 | 25 | 49 | 81 |

(b) Total squares in diagram 30 → \((30 + 29)^2 = 59^2\)
\[59 \times 59 = 3481 \text{ squares}\]

(c) Total unshaded squares
\[\text{No. of unshaded squares} \times 2 = (49 \times 2)^2 = 98^2\]
\[98 \times 98 = 9604 \text{ unshaded squares}\]

(d) \(29 - 1 = 28\)
\(28 \div 4 = 7\)
\(7 + 1 = 8\)

Diagram 8 has 29 shaded squares

Qn 2 (a) 

<table>
<thead>
<tr>
<th>Fig.</th>
<th>No. of squares</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>1 + 4 + 5</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>1 + 4 + 9 + 14</td>
<td>14</td>
</tr>
<tr>
<td>4</td>
<td>1 + 4 + 9 + 16</td>
<td>30</td>
</tr>
</tbody>
</table>

(b) \(1 + 4 + 9 + 16 + 25 + 36 + 49 + 64 + 81\)
\[= 285 \text{ squares}\]

Figure 9 since \(9 \times 9 = 81\)

**Unit 2.4 – Sum of Consecutive Numbers**

Qn 3 (a) Area \[\frac{20 \times 21}{2} \times 4 \text{cm}^2 = 840 \text{cm}^2\]
Perimeter → 20 x 2cm x 4 = 160cm

(b) No. of cubes for figure 40 → \[\frac{40 \times 41}{2} = 820\]

(c) Area → \[\frac{90 \times 91}{2} \times 4 \text{cm}^2 = 16380 \text{cm}^2\]
Perimeter → 90 x 2cm x 4 = 720cm

**Unit 2.6 – Multiple of Sum of Consecutive**

Qn 1
Day 1 → 3 x 1 = 3
Day 2 → 5 x 3 = 3 x 12 = 15
Day 3 → 7 x 5 = 3 x 12 + 20 = 35
Day 4 → 9 x 7 = 3 x 12 + 20 + (9 + 9 + 10) = 63

(a) No. of cubes added on Day 5 → \((11 \times 2) + (7 \times 2)\)
\[= 22 + 14 = 36 \text{ cubes}\]

(b) Total blocks on Day 10 → \((10 x 2 + 1) \times (10 x 2 + 1 - 2)\)
\[= 21 \times 19 = 399\]

(c) Total blocks on Day 30 → \((30 x 2 + 1) \times (30 x 2 + 1 - 2)\)
\[= 61 \times 59 = 3599\]

---

Qn 2
(a) No. of small triangles → 16
No. of sticks → 30
→ 3 x 10

(b) Figure 5 → 50 x 50 = 2500 triangles
Sticks → \(3 \times (1 + 2 + 3 + ... + 50)\)
\[= 3 \times \frac{50 \times 51}{2} = 3825\]

(c) Figure 100 → 100 x 100 = 10000 triangles
Sticks → \(3 \times 100 \times 101\)
\[= 15150 \text{ sticks}\]

(d) 84 ÷ 3 = 28
28 x 2 = 56
Since 7 x 8 = 56
Figure 7, no. of triangles → 7 x 7 = 49

Qn 5 (a) Total no. of dots; No of small right angled triangles
T4 → 25; 32
T10 → 111 = 121; 10 x 20 = 200

(b) Total dots for figure 20 → 21 x 21 = 441

(c) Total no. of small right angled triangles in figure 50 → \(50 \times 100\)
\[= 5000\]

(d) No, because 340 ÷ 2 = 170 is not a square number.
(Example, 49 is a square number because \(7 \times 7 = 49\))

**Chapter 3 Circles**

**Unit 3.2 – Composite Figure**
(Rugby ball = 2 x (Quadrant – Triangle))

Qn 3 (a) \(\frac{\pi r^2}{8}\)

(b) Shaded part → quadrant - triangle
\[\frac{\pi}{4} \text{x} (2)^2 = \frac{\pi}{4} \cdot \frac{1}{2} \cdot \text{x} (2^2)\]
\[= 3.5 \text{cm}^2\]

(c) Area → 3.5 x 8 = 28 cm²

Qn 4
Area → circle – square
→ \(\pi r^2 - 2(\frac{1}{2} \times 16 \times 8)\) → \(\pi (8)^2 - (16 \times 8)\) → 73 cm²

Qn 7
Area → \(\frac{1}{4} \text{ big circle} - \frac{1}{4} \cdot \pi r^2\) → \(\frac{1}{4} \cdot \pi (20)^2\) → 314 cm²

Qn 8
Perimeter → 1 small circle + 1 big quadrant → \(2 \cdot \pi r + \frac{2 \cdot \pi r}{4}\)
\[= 2 \cdot \pi (7) + \frac{2 \cdot \pi (14)}{4} \approx 66 \text{cm}\]

Area → quadrant – triangle → \(\frac{\pi r^2}{4} - (\frac{1}{2} \times b \times h)\)
\[\frac{\pi (14)^2}{4} - \frac{1}{2} \times (14)^2\]
\[= 56 \text{cm}^2\]
Unit 3.3 – Similar Figures

Qn 3
Diameter (S) : Diameter (M) : Diameter (B) → 4 : 8 : 12
Area (S) : Area (M) : Area (B) = 1 : 4 : 9
Shaded part → 9U – 4U – 1U = 4U
Area of small semi-circle → 1U = \(\frac{1}{2}\pi(2)^2 \approx 6.3\)
Area of shaded part → 4U → 4 x 6.3 \(\approx 25\)cm²
Perimeter of shaded part → 1 big circle → \(2\pi r\) → \(2\pi(6) \approx 38\)cm

Qn 6
Diameter (S) : Diameter (M) : Diameter (B) → 1 : 2 : 4
Area (S) : Area (M) : Area (B) → 1 : 4 : 16
Shaded part → 16U – 4U – (1 x 4)U = 8U
Diameter (S) → 72 ÷ 4 = 18 cm
Radius → 9 cm
Area of small circle → \(\pi(9)^2 = 81\pi\) cm²
Area of shaded part → \(\frac{81\pi x 8}{4} \approx 648\pi\) cm²

Unit 3.4 – Cut and Paste

Qn 5
Area of shaded part → area of sector \(+\frac{120}{360} \times \pi(10)^2\) = 105cm²

Qn 7
Area of shaded part → area of triangle → \(\frac{1}{2} x 16 x 8 = 64\) cm²

Qn 10
Square – quadrant → \((12)^2 - \frac{\pi(12)^2}{4} \approx 30.9\)cm²
Area of region Z → 30.9 + 2 = 15.5cm²
Shaded area → semi-circle – region Z → \(\frac{\pi(12)^2}{2} - 15.5 = 211\) cm²

Qn 13
Area of shaded → big semi – triangle + rectangle(after cut N paste) → \(\frac{\pi(14)^2}{2} - \frac{1}{2}(28)(10) + (14 x 7) = 266\)cm²

Unit 3.5 Overlapping Method

Qn 4
Triangle → 48cm²
1 triangle → 16cm²
\(\frac{3}{4}\)
Area of 1 circle → \(\pi x 6 x 6 = 113.1\) cm²
113.1 – 48 = 65.1 cm²
65.1 + 3 = 21.7 cm²
Area of 1 shaded → 21.7 cm² – 16 cm² = 5.7 cm²
Area of shaded parts → 5.7 cm² x 3 = 17.1 cm²

Qn 5
Area of Region A → rectangle – quadrant
\(= \frac{\pi(4)^2}{4} = 19.4\)cm²
Shaded region → Big semi-circle - (2 x region A)
\(= \frac{\pi(8)^2}{2} - (2 x 19.4) = 62\)cm²

Qn 7
Areas X + A → quadrant – small semi-circle → \(\frac{\pi(14)^2}{4} - \frac{\pi(7)^2}{2} \approx 77.0\)cm²
Areas Y + A → square - quadrant → \((14 x 14) - \frac{\pi(14)^2}{4} = 42.1\)cm²
Difference between X and Y → 77 – 42.1 = 35cm²

Chapter 4 Speed

Unit 4.1 - Journey by Parts

Qn 6
To find the average speed for the whole journey, we must first find the total distance from Town A to B.
Distance (1st 2h) → 24km/h x 2h = 48km
\(\frac{4}{5}\)
Distance → 48km
\(\frac{1}{5}\)
Distance → 12km
Whole distance → 12km x 5 = 60km
Average speed for whole journey → \(\frac{50km}{3h} = 20km/h\)

Unit 4.2 – Journey in Opposite Direction

Qn 4
Distance (Janet) → 80km/h x 2h = 160km
Distance (Tommy) → 310km – 160km = 150km
Speed (Tommy) → 150km x 2 = 75km/h

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Qn 5

In 30 min, Benedict jogged $1.2\text{km} \times \frac{1}{2} = 600\text{m}$ more than Alan.

\[
\begin{align*}
\text{Alan} & & \text{Benedict} \\
\text{5200m} & & \text{600m} \\
\end{align*}
\]

2 Units + 600 = 5200
2 Units → 5200 - 600 = 4600
1 Unit → 4600 + 2 = 2300m

Speed (Alan) → 2.3 km + $\frac{1}{2}$ h = 4.6 km/h

\[ \text{Unit} → 4.6 \times 2 = 9.2 \text{km/h} \]

\[ \text{Distance from A to B} → 16U → 16 \times 24 = 384\text{km} \]

Chapter 5 Simultaneous

Unit 5.1 – Simultaneous (Fraction of different quantities)

Qn 4

\[ \frac{1}{4} \text{circle} + \frac{1}{3} \text{rectangle} \rightarrow \frac{2}{5} \text{square} \] × 3

\[ \frac{3}{4} \text{circle} + \text{rectangle} \rightarrow \frac{6}{5} \text{square} \]

\[ \text{Circle + rectangle} \rightarrow \frac{7}{5} \text{square} \]

\[ \frac{1}{4} \text{circle} \rightarrow \frac{1}{5} \text{square} \]

\[ \frac{4}{5} \text{circle} : \text{Square} \]

\[ 4U + \text{rectangle} \rightarrow \frac{7}{5} \times 5 = 7U \]

\[ \text{Rectangle} \rightarrow 3U \]

\[ \frac{5}{3} \text{circle} : \frac{3}{5} \text{rectangle} \]

\[ \frac{1}{2} \text{boys} \rightarrow 160 \]

\[ \frac{1}{2} \text{boys} \rightarrow 320 \]

Qn 6

\[ Z : X \]
\[ 5 : 12 \]

\[ Y + 5U \rightarrow \frac{3}{4} (12U) \]

\[ Y \rightarrow 4U \]

\[ \frac{1}{4} Y + \frac{1}{5} Z \rightarrow \frac{1}{6} X \]

\[ \frac{1}{4} Y + \frac{4}{5} Z \rightarrow \frac{4}{6} X \]

\[ Y + Z \rightarrow \frac{3}{4} X \]

\[ \frac{1}{5} Z \rightarrow \frac{1}{12} X \]

\[ Z : X : Y \]
\[ 5 : 12 : 4 \]

1U → 24cm²

Total area of figure → Area (X + Y + Z) – Shaded Area
→ 5U + 12U + 4U – 2U = 19U
→ 19 x 24 = 456cm²

Qn 8

\[ \frac{1}{2} \text{girls} - \frac{1}{4} \text{boys} \rightarrow 120 \]

\[ \text{Girls} - \frac{2}{4} \text{boys} \rightarrow 240 \]

\[ \text{Girls + Boys} \rightarrow 720 \]

\[ \text{Difference} \frac{4}{4} \text{boys} + \frac{2}{4} \text{boy} \rightarrow 720 - 240 = 480 \]

\[ \frac{6}{4} \text{boys} \rightarrow 480 \]

\[ \frac{3}{2} \text{boys} \rightarrow 480 \]

\[ \frac{1}{2} \text{boys} \rightarrow 160 \]

\[ \text{Boys} \rightarrow 160 \times 2 = 320 \]
Chapter 6 Percentage

Unit 6.1 – Percentage

Qn 3
(a) Adults → 80%
   Children → 20%

Female → 30% of 80% → \( \frac{3}{10} \times 80\% = 24\% \)

Male → 80% - 24% = 56%

Girls → 60% of 20% → \( \frac{6}{10} \times 20\% = 12\% \)

Boys → 20% - 12% = 8%

Boys - Girls → 12% - 8% = 4% of audience → 40 people.

Total 100% of audience = 1000 people.

(b) The number of children and men remained the same,

Children + male → 76% = 760 people.

If 80% of remaining people → 760

1% of remaining people → 9.5 people.

20% of remaining people → 9.5 \times 20 = 190 women.

Woman at first → 240

Women who left → 240 - 190 = 50 people.

Qn 5

Fixed → 40% (2U) \xrightarrow{\times 5} 10U

Unfixed → 100% (5U) \xrightarrow{\times 5} 25U

Fixed → 80% (4U) \xrightarrow{\times 7} 28U

Unfixed → 20% (1U) \xrightarrow{\times 7} 7U

Transfer → 18U → 180 pieces

1U → 10 pieces

Total → 35U → 35 \times 10 = 350 pieces

Qn 8

50% A → 30% B

\( \frac{1}{2} \) A → \( \frac{3}{10} \) B

\( \frac{3}{6} \) A → \( \frac{3}{10} \) B

A : B → 6 : 10

C is 50% of A + B

C → \( \frac{1}{2} \times 16U = 8U \)

Removed \( \frac{1}{4} \times 8U = 2U \) in C

A : B : C

\( \frac{6}{10} : \frac{6}{10} \) → 4U → 12

1U → 3

No. of oranges in A → 6U → 6 \times 3 = 18

Qn 10

Money

25% + $30 (book)

75% - $30 remainder

60% + $20 (CD)

40% - $20 (left)

$64

40% remainder → $20 + $64 = $84

Qn 10 (cont)

20% remainder → $42

Remainder → $42 \times 5 = $210

75% total -> $30 → $210

75% total → $240

25% total → $80

Total → $80 \times 4 = $320

Qn 12

Jenny → 80%

Daryl → 100%

Jenny left → 80% of 80% → 64%

Daryl (end) → 64% \times 2 = 128%

Increase (Daryl) → 28% of cards → 56

1% of cards → 2

Jenny at first → 80% → 80 \times 2 = 160 pieces

Qn 13

Red → 120% (6U) \xrightarrow{\times 3} 18U

Blue → 100% (5U) \xrightarrow{\times 5} 15U

Red → 90% (9U) \xrightarrow{\times 2} 18U

Green → 100% (10U) \xrightarrow{\times 2} 20U

No. \times Value

Total

Red 18U \times 2 → 36U

Green 20U \times 5 → 100U

Blue 15U \times 3 → 45U

Total → 181U = 724

1U → 4

Red balls → 18U → 18 \times 4 = 72

Qn 14

Jason : Susan

At first 75% \( \frac{3}{4} \) U : 100%

Change \( \times \frac{4}{6} \) : \( \times \frac{6}{6} \)

End (120%) \( \frac{5}{6} \times \frac{6}{6} \) : \( \frac{5}{6} \times \frac{6}{6} \) (100%)

Jason 15U : 240

Susan 24U : 24

9U → 240 - 24 = 216

1U → 24

Jason at first → 3U → 3 \times 24 = 72

Unit 8.1 – Algebra

Qn 7

(a) \( \frac{x}{4} \) cm

Total perimeter → 12U → X cm

1U → \( \frac{x}{12} \) cm

Shortest length → 3U → 3 \times \( \frac{x}{12} = \frac{x}{4} \) cm

(b) Since \( X = 24 \text{ cm} \); Shortest = 6cm

2nd shortest → 4U → 4 \times \( \frac{24}{12} = 8 \text{ cm} \)

Area of triangle \( \frac{1}{2} \times 6 \times 8 = 24 \text{ cm}^2 \)

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Qn 9
Siti → \[ \begin{array}{c} 5k \\ \frac{3k}{2} \end{array} \] $165
Lilian → \[ \begin{array}{c} + \frac{5k}{2} \end{array} \] $165
Janet → $165
5 \[ \frac{3k}{2} \] → 165
5 \[ \frac{3k}{2} \] → 165 - \[ \frac{3k}{2} \]
\[ \frac{3k}{2} \] → \[ \frac{330 - 3k}{10} \] → \[ \frac{330 - 3k}{5} \]
Siti → 2 \[ \frac{330 - 3k}{10} \] → \[ \frac{330 - 3k}{5} \]
K = 8, Siti → \[ \frac{330 - (3\times8)}{5} = $61.20 \]

Unit 9.1 – Revision of Key Constructs
Qn 12
Case 1 : + 10 red beads
Ratio Red : Blue
2 : 3
Case 2 : +10 red beads + 30 blue beads
1 : 3 (x2)
2 : 6
Blue changed by 3 units → 3u → 30 beads
1u → 10 beads
Red beads → 2units → 2 x 10 beads = 20 beads
Number of beads → 20 – 10 = 10 beads

Qn 13
80% male = 90% female
\[ \frac{8}{10} \] = \[ \frac{9}{10} \] female
\[ \frac{72}{90} \] = \[ \frac{72}{80} \] female
Total → 90U + 80U = 170U
170 U → 170 members
1U → 1 member
Total this year → 144U → 144 members

Qn 16
$834 - $66 = $768
$768 + 2 = $784
Pants → $384 + $66 = $450
Shirts → $384
3U of pants cost $450
4U of shirts cost $384
1U of pants cost $150
1U of shirts cost $96
Difference in 1U → $54
No. of items in 1U → $54 + 9 = 6
Total shirt + pants bought → 7U x 6 = 42

Qn 17
<table>
<thead>
<tr>
<th>Item</th>
<th>No. of Boxes</th>
<th>x</th>
<th>Item</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Red</td>
<td>x 120</td>
<td>120 Red + 1440</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td>x 150</td>
<td>150 Red</td>
<td></td>
<td></td>
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Comparing the total of items (plates vs cups)
Cups → Plates + 120
150 Red → 120 Red + 1440 + 120
30 Red → 1560
Number of Red boxes → 1560 + 30 = 52
Number of Blue boxes → 52 + 12 = 64
Total Plates → 64 x 120 = 7680

Qn 18
\[ \frac{1}{3} \text{ Lim} = \frac{3}{4} \text{ Zhang} \]
\[ \frac{3}{9} \text{ Lim} = \frac{3}{4} \text{ Zhang} \]
\[ \frac{5}{6} x \left( -150 \right) = 50 \]
Lim → 21U → 1050
1U → 50
Total ducks → 13U → 13 x 50 = 650

Qn 19
Total shaded area = \( \frac{1}{2} \times 20 \times 17 \times 4 = 680 \text{cm}^2 \)
Since AB = BE but AB = BC
Therefore EB = BC = CF = 60 ÷ 3 = 20cm

Qn 24
(a) No. of shaded tiles = 20
No. of plain tiles = 16
(b) Shaded 8 + 8 (4) = 40
Plain 9 x 9 = 81
Total → 40 + 81 = 121

Qn 25
Assume all delivered successfully,
Total earned → $25 x 500 = $12500
Amount refunded → $12500 - $9500 = $3000
No. of parcels damaged → $3000 + ($25 +$15) = 75
No. of parcels delivered successfully → 500 – 75
= 425 parcels
Qn 49

<table>
<thead>
<tr>
<th></th>
<th>2U (gave)</th>
<th>10U (left)</th>
<th>288</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calvin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elizabeth</td>
<td>9U (gave)</td>
<td>3U (left)</td>
<td></td>
</tr>
<tr>
<td>Left behind</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calvin</td>
<td>10U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elizabeth</td>
<td>3U</td>
<td>324</td>
<td></td>
</tr>
</tbody>
</table>

\[
\begin{align*}
\frac{1}{6} &= \frac{2}{12} \\
\frac{3}{4} &= \frac{9}{12} \\
\frac{1}{4} \times 288 &= 48 \\
6U &\rightarrow 84 \\
1U &\rightarrow 12 \\
\text{Total sweets Calvin had at first} &\rightarrow 12U + 288 \\
&\rightarrow 12 \times 12 + 288 = 432
\end{align*}
\]

Sample Examination Paper 2 – Booklet B

12. \( S_1 : S_2 \) : \( T_1 : T_2 \)
\[ \begin{align*}
10 & : 12 \\
5 & : 6 \\
11U & \rightarrow 55\text{min} \\
1U & \rightarrow 5\text{min} \\
T_1 \text{ (home to nearby park)} &\rightarrow 6U \rightarrow 6 \times 5 = 30\text{min}
\end{align*} \]

16.

\[
\begin{align*}
\text{Elias} & : \text{Roy} \\
5 \times (30\%) & : 10U \ (100\%) \\
5 \times 50 & + 25 \times 4 \\
5 \times (80\%) & : 5p \ (100\%) \times 4
\end{align*}
\]

<table>
<thead>
<tr>
<th></th>
<th>15U</th>
<th>250</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elias</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roy</td>
<td>40U</td>
<td>100</td>
</tr>
</tbody>
</table>

25U \rightarrow 150
1U \rightarrow 150 + 25 = 6
Elias at first \rightarrow 3U \rightarrow 3 \times 6 = 18