Online Solutions
For P4 +hinkingMath@onSponge™

Note: In all solutions, U represents Units

Chapter 1 Whole Numbers

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

Qn 4
Joshua 3U
Melvin 1U
2U → 15 + 45 = 60
1U → 30
Number of stickers Joshua had at first → 3U → 3 × 30 = 90

Qn 6
John 1U $75
Melvin 1U
2U → $30
1U → $15
John at first → $15 + $75 = $90

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

Qn 4
Swimmers 1U
Non-swimmers 1U
Swimmers 1U
Non-swimmers 1U
2U → 120
1U → 60
Number of swimmers at the carnival → 5U → 5 × 60 = 300

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

Qn 4
Men
Women 5U → 45
1U → 9
Number of men at the party at first → 6U → 6 × 9 = 54

Unit 1.10 – Equal Stage Type 1 (Beginning)

Qn 5
At first
Pears
Apples
End
Pears
Apples
2U → 1U + 42
1U → 42
Number of apples at first → 42 × 2 = 84

Qn 6
Boys
Girls
End
Boys
Girls
1U → 60 – 12 = 48
Number of boys at first → 48 × 60 = 108

Unit 1.11 – Equal Stage Type 2 (End)

Qn 5
End
Oranges
Apples
At first
Oranges
Apples
3U → 125 – 35 = 90
1U → 30
Number of oranges at first → 30 + 35 = 65

Qn 6
End
Raymond
Rauf
At first
Raymond
Rauf
2U → 224 – 12 – 30 = 182
1U → 91
Raymond at first → 91

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Unit 1.12 – Equal Stage Type 3 (Internal Transfer)

Qn 4

<table>
<thead>
<tr>
<th>David</th>
<th>Serene</th>
</tr>
</thead>
<tbody>
<tr>
<td>End</td>
<td></td>
</tr>
</tbody>
</table>

At first:

<table>
<thead>
<tr>
<th>David</th>
<th>Serene</th>
</tr>
</thead>
<tbody>
<tr>
<td>5U</td>
<td>+32</td>
</tr>
</tbody>
</table>

David → 32 → 32 = 64
1U → 16
Each at first:

- Serene → $16
- David → 5 × $16 = $80

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

Qn 7

<table>
<thead>
<tr>
<th>1 bat</th>
<th>1 racket</th>
<th>4 bats</th>
<th>7 rackets</th>
</tr>
</thead>
<tbody>
<tr>
<td>$114</td>
<td>$22</td>
<td></td>
<td>(+$22 × 7)</td>
</tr>
</tbody>
</table>

11U + $154 → $286
11U → $132
1U → $12
1 racket costs $12 + $22 = $34

Qn 8

<table>
<thead>
<tr>
<th>1 CD</th>
<th>1 shirt</th>
<th>1 Bermuda</th>
</tr>
</thead>
<tbody>
<tr>
<td>$8</td>
<td></td>
<td>$8 + $12</td>
</tr>
</tbody>
</table>

$8 + $12 = $20

3U + $28 → $76
3U → $48
1U → $16
1 T-shirt costs $16 + $8 = $24

Qn 9

<table>
<thead>
<tr>
<th>2 cups</th>
<th>1 plate</th>
<th>1 bowl</th>
</tr>
</thead>
<tbody>
<tr>
<td>$3</td>
<td></td>
<td>$3</td>
</tr>
</tbody>
</table>

$3 + $3 = $6
4U + $8 → $18
4U → $10
1U → $2.50
12 cups → 12 × $2.50 = $30

Unit 1.14 – Number of Units and Value of Units

Qn 5

<table>
<thead>
<tr>
<th>Number</th>
<th>Value</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>1U × 8</td>
<td>8U</td>
</tr>
<tr>
<td>Children</td>
<td>20U × 5</td>
<td>100U</td>
</tr>
</tbody>
</table>

108U → 432
1U → 432 + 108 = 4

Total number of children → 20U → 20 × 4 = 80

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Unit 1.15 – Repeated Identity (Type 1)

Qn 4

<table>
<thead>
<tr>
<th>Michelle</th>
<th>Chris</th>
<th>Rebecca</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2U → 8
1U → 8 + 2 = 4
Total dolls collected → 7U → 7 × 4 = 28

Qn 5

<table>
<thead>
<tr>
<th>Boys</th>
<th>Girls</th>
<th>Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Difference between adults and boys → 11U → 88
1U → 8
Total number of people at the fun fair → 20U → 20 × 8 = 160

Unit 1.16 – Repeated Identity (Type 2)

Qn 5

<table>
<thead>
<tr>
<th>Green</th>
<th>Blue</th>
<th>Red</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

4U + 45 → 141
4U → 96
1U → 24
Total green balloons → 24

Unit 1.17 – Repeated Identity (Type 3)

Qn 5

| Difference in students = Difference in girls |
|------|----------------|
| 3U → 420 – 225 = 195 |
| 1U → 195 + 3 = 65 (Girls in Campsite A) |

Number of boys in Campsite A → 225 – 65 = 160
Total number of boys in both campsites → 160 × 2 = 320

Qn 3

| Difference in red and blue balls = 3U – 1U = 2U |
|------|-----------|
| 2U → 320 – 180 = 140 |
| 1U → 70 |

Total number of green balls in both bags → (180 – 70) × 2 = 220
Chapter 2 Fraction

Unit 2.1 – Addition & Subtraction of Fractions

Qn 6
\[
\begin{align*}
7 - \frac{5}{12} &= \frac{2}{12} = \frac{1}{6} \\
\frac{1}{6} \text{ ribbon} &\rightarrow 24 \text{ cm} \\
6 \text{ ribbon at first} &\rightarrow 24 \times 6 = 144 \text{ cm}
\end{align*}
\]

Unit 2.3 – Addition & Subtraction of Fractions

Qn 4
Weight of cup: \[
\begin{align*}
\frac{3}{2} \text{ kg} - \frac{5}{2} \text{ kg} &= \frac{10}{15} \text{ kg} - \frac{6}{15} \text{ kg} = \frac{4}{15} \text{ kg}
\end{align*}
\]
Difference in weight: \[
\begin{align*}
\frac{2}{5} \text{ kg} - \frac{4}{15} \text{ kg} &= \frac{6}{15} \text{ kg} - \frac{4}{15} \text{ kg} = \frac{2}{15} \text{ kg}
\end{align*}
\]

Unit 2.4 Part-whole Relationship

Qn 5
remainder

Basketball: 3U
Softball: 3U
Table tennis: 7U

Difference between basketball and table tennis: 3U → 9
1U → 3
Total in the class: 16U → 16 × 3 = 48

Unit 2.5 Part-whole Relationship

Qn 7
remainder

class: 1U → 30
CCA: 1U → 15 × 30 = 450

Chapter 2 Fraction

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

Qn 6
\[
\begin{align*}
\frac{7}{12} - \frac{5}{12} &= \frac{2}{12} = \frac{1}{6} \\
\frac{1}{6} \text{ ribbon} &\rightarrow 24 \text{ cm} \\
6 \text{ ribbon at first} &\rightarrow 24 \times 6 = 144 \text{ cm}
\end{align*}
\]

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

Qn 5
remainder

Basketball: 7U
Softball: 1U
Table tennis: 7U

Difference between basketball and table tennis: 7U = 3U → 9
1U → 3
Total in the class: 16U → 16 × 3 = 48

Unit 2.4 Part-whole Relationship (Type 1)

Qn 5
remainder

green: 1U
blue: 1U
red: 7U

Difference between red and green: 1U → 12
Total in the bag: 7U → 7 × 12 = 84

Unit 2.5 Part-whole Relationship (Type 2)

Qn 5
remainder

Basketball: 3U
Softball: 3U
Table tennis: 7U

Difference between basketball and table tennis: 3U → 9
1U → 3
Total in the class: 16U → 16 × 3 = 48

Unit 2.6 Part-whole Relationship (Type 3)

Qn 3

3 pens \[\frac{3}{7}\] remainder \[\frac{1}{7}\]

1 poster \[\frac{1}{7}\] \[\frac{1}{4}\] final fraction \[\frac{3}{7}\]

2 books \[\frac{2}{7}\] \[\frac{1}{3}\] \[\frac{2}{7}\] \[\frac{1}{3}\]

3 left \[\frac{3}{4}\] \[\frac{1}{7}\] \[\frac{3}{7}\]

(a) Fraction of money left: \[\frac{1}{7}\]

(b) Difference between books and posters: \[\frac{2}{7} - \frac{1}{7} = \frac{1}{7}\]

Since \[\frac{1}{7}\] = $12, \[\frac{7}{7}\] = $72 \[\frac{1}{7}\] = $12 \[\frac{7}{7}\] = $84

Sum of money Serene had at first: $84

Qn 4

1 pies \[\frac{1}{2}\] final fraction \[\frac{7}{14}\]

1 left \[\frac{1}{2}\] \[\frac{4}{7}\] bread \[\frac{7}{3}\] remainder \[\frac{3}{7}\]

Cost of Bread and Pie

1 Loaf of Bread: 3U
1 Pie: 1U

\[\frac{4}{14}\] total → 8 loaves of bread
\[\frac{14}{14}\]

Since 1 loaf of bread → 3U, 8 loaves of bread → 8 × 3U → 24U
\[\frac{14}{14}\] total → 24U
\[\frac{14}{14}\] total → 6U

Number of pies: 7 \[\frac{7}{14}\] total → 7 × 6 = 42U (42 pies since 1 pie is 1U)
Qn 5

\[
\begin{align*}
\text{wife} & \quad \frac{2}{7} \\
\text{remainder} & \quad \frac{5}{7} \\
\text{left} & \quad \frac{2}{3}
\end{align*}
\]

\[
\begin{align*}
\text{Final Fraction} & \quad \frac{2}{7} = \frac{6}{21} \\
& \quad \frac{1 \times 5}{3 \times 7} = \frac{5}{21} \\
& \quad \frac{2 \times 5}{3 \times 7} = \frac{10}{21}
\end{align*}
\]

10 total → $2200

\[
\begin{align*}
\frac{21}{21} \text{ total} & \quad 21 \times 21 = 4620 \\
\end{align*}
\]

Mr Imran’s salary → $4620

Qn 6

\[
\begin{align*}
\text{non-swimmers} & \quad \frac{3}{5} \\
\text{boys} & \quad \frac{1}{4} \\
\text{girls} & \quad \frac{3}{4}
\end{align*}
\]

\[
\begin{align*}
\text{Final Fraction} & \quad \frac{3}{5} \times \frac{3}{4} = \frac{9}{20} \\
& \quad \frac{1 \times 3}{4 \times 5} = \frac{3}{20} \\
& \quad \frac{1 \times 2}{4 \times 5} = \frac{2}{20}
\end{align*}
\]

Total swimmers → 9 + \(\frac{2}{20} = \frac{11}{20}\)

11 → 154

\[
\begin{align*}
\frac{20}{20} & \quad 154 + 11 = 165 \\
\frac{20}{20} & \quad 20 \times 14 = 280
\end{align*}
\]

There were 280 students.

Unit 2.8 Equal Stage (Type 1)

Qn 5

At first

\[
\begin{array}{c}
\text{Boys} \\
\text{End} \\
\text{Boys} \\
3U \quad 42 - 12 = 30 \\
1U \quad 10
\end{array}
\]

Girls

\[
\begin{array}{c}
\text{End} \\
\text{Girls} \\
3U \quad 42 - 12 = 30 \\
1U \quad 10
\end{array}
\]

Total number of students at first → 10U → 10 \times 10 = 100

Qn 6

At first

\[
\begin{array}{c}
\text{Banana} \\
\text{Chocolate} \\
\text{End} \\
2U \quad 45 + 15 = 60 \\
1U \quad 30
\end{array}
\]

Total number of muffins at first → 14U → 14 \times 30 = 420

Unit 2.9 – Equal Stage (Type 2)

Qn 4

Clara

\[
\begin{array}{c}
\text{Judy} \\
13U \quad 260 \\
1U \quad 20
\end{array}
\]

Number of pebbles Judy must give Clara

\[
\begin{align*}
& \quad \frac{2}{2} = 20 \\
& \quad \frac{1}{2} \times 20 = \frac{5}{2} \times 20 = 50
\end{align*}
\]

Qn 5

David

\[
\begin{array}{c}
\text{Raymond} \\
7U \quad 280 \\
1U \quad 40
\end{array}
\]

Number of books Raymond must give David

\[
\begin{align*}
& \quad \frac{1}{2} \times 40 = \frac{3}{2} \times 40 = 60
\end{align*}
\]

Unit 2.10 – Equal Stage (Type 3)

Qn 5

\[
\begin{align*}
\frac{3}{4} \text{ boys} & \quad \rightarrow \frac{2}{3} \text{ girls} \\
\frac{6}{8} \text{ boys} & \quad \rightarrow \frac{6}{9} \text{ girls}
\end{align*}
\]

Boys → 8U

Girls → 9U

Total → 17U → 510

1U → 30

Difference between boys and girls → 1U → 30

Qn 9

\[
\begin{align*}
\frac{1}{3} \text{ Esther} & \quad \rightarrow \frac{3}{7} \text{ Kevin} \\
\frac{3}{12} \text{ Esther} & \quad \rightarrow \frac{3}{7} \text{ Kevin}
\end{align*}
\]

Esther → 12U

Kevin → 7U

Difference → 5U → $350

1U → $70

Kevin → 7U → 7 \times $70 = $490

Qn 10

\[
\begin{align*}
\frac{2}{15} \text{ boys} & \quad \rightarrow \frac{3}{16} \text{ girls} \\
\frac{5}{8} \text{ boys} & \quad \rightarrow \frac{6}{9} \text{ girls}
\end{align*}
\]

Boys → 15U

Girls → 16U

Difference → 1U → 30

Boys at first → 15U → 15 \times 30 = 450

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Unit 2.11 – External Unchanged (Type 1)

Qn 4

At first

<table>
<thead>
<tr>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>5U</td>
<td>80</td>
</tr>
<tr>
<td>1U</td>
<td>16</td>
</tr>
</tbody>
</table>

Men → 16 x 7 = 112
Women → 12 x 16 = 192

End

Men → 1U
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

<table>
<thead>
<tr>
<th>Orange</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>3U</td>
<td>7U</td>
</tr>
</tbody>
</table>

End

Orange → 1U x 3 → 3U
Water → 4U x 3 → 12U

Increase in water used → 12U – 7U = 5U
5U → 1100 m³
1U → 220 m³
Amount of syrup used → 3U → 3 x 220 = 660 m³

Qn 4

At first

<table>
<thead>
<tr>
<th>Oranges</th>
<th>Pears</th>
</tr>
</thead>
<tbody>
<tr>
<td>1U x 3</td>
<td>6U</td>
</tr>
</tbody>
</table>

End (conditional)

Oranges → 3U
Pears → 2U

Decrease in pears → 6U – 2U → 4U
4U → 20
1U → 5
Total → 9U → 9 x 5 = 45

Qn 5

At first

<table>
<thead>
<tr>
<th>Red</th>
<th>Blue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1U x 5</td>
<td>5U</td>
</tr>
<tr>
<td>3U x 5</td>
<td>15U</td>
</tr>
</tbody>
</table>

End

Red → 2U x 3 → 6U
Blue → 5U x 3 → 15U

Increase in red → 6U – 5U = 1U
2U → 12
Total → 20U → 20 x 12 = 240

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Unit 2.13 – Repeated Identity

Qn 3

<table>
<thead>
<tr>
<th>Boys</th>
<th>Girls</th>
<th>Adults</th>
<th>Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>1U x 5</td>
<td>3U x 5</td>
<td>2U x 4</td>
<td>5U x 4</td>
</tr>
</tbody>
</table>

Difference between adults and boys → 8U – 5U = 3U
3U → 24
1U → 8

Total number of people → 28U → 28 x 8 = 224

Chapter 5 Area and Perimeter

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

Qn 5

Area of rectangle = 14 cm x 10 cm = 140 cm²
Area of 4 squares = 2 cm x 2 cm x 4 = 16 cm²
Area of remaining figure = 140 cm² – 16 cm² = 124 cm²
Perimeter of remaining figure = (14 cm + 10 cm) x 2 = 48 cm

Qn 6

Area of rectangle = 22 cm x 14 cm = 308 cm²
Area of 4 squares = 2 cm x 2 cm x 4 = 16 cm²
Area of remaining figure = 308 cm² – 16 cm² = 292 cm²
Perimeter of remaining figure = (22 cm + 14 cm) x 2 + 4 cm + 4 cm
= 72 cm + 8 cm
= 80 cm

Unit 5.4 – Area and Perimeter of Proportional Figures

Qn 4

Breadth = 2 units
Length = 3 units

2 units x 3 unit → 54 cm²
1 unit x 1 unit → 54 cm² + 6 → 9 cm²
1 unit → 3 cm

Breadth = 2 x 3 = 6 cm
Length = 3 x 3 = 9 cm
Perimeter = (6 cm + 9 cm) x 2 = 30 cm

Qn 5

Breadth = 3 units
Length = 4 units

3 units x 4 unit → 192 cm²
1 unit x 1 unit → 192 cm² ÷ 12 → 16 cm²
1 unit → 4 cm

Breadth = 3 x 4 = 12 cm
Length = 4 x 4 = 16 cm
Perimeter = (12 cm + 16 cm) x 2 = 56 cm

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

Qn 5

Length of square garden = 8m
Area of big square = (8+6)m x (8+6)m
= 14m x 14m = 196 m²
Area of pathway = 196 m² – 64 m² = 132 m²

Online Solutions for P4 +hinkingMath@onSponge™ (Updated on 16 April 11)
Qn 6
Length of small square = 8 cm
Length of big square = 8 cm + 4 cm = 12 cm
Area of big square = 12 cm × 12 cm = 144 cm²

Qn 7
Since 64 – 16 = 48
Area of big square = 64 cm²

Qn 8
Since 36 cm² + 64 cm² = 100 cm²
Length of small square = 6 cm
Length of big square = 8 cm
Total perimeter = (6 cm + 8 cm + 8 cm) × 2 = 44 cm

Qn 9
Since 81 cm² + 144 cm² = 225 cm²
Length of small square = 9 cm
Length of big square = 12 cm
Total perimeter of figure = (12 cm + 12 cm + 9 cm) × 2 = 66 cm

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

Qn 3
Perimeter of garden = (2 units + 1 unit) × 2 = 6 units
6 units → 48 m
1 unit → 8 m
Area of garden = 16 m × 8 m = 128 m²
Area of big rectangle = 20 m × 12 m = 240 m²
Area of pathway = 240 m² – 128 m² = 112 m²

Qn 5
Area of field = 2 units × 1 units = 3200 m²
1 unit × 1 unit = 1600 m²
Length (field) = 80 m
Breadth (field) = 40 m
Area of big rectangle = 90 m × 50 m = 4500 m²
Area of track = 4500 m² – 3200 m² = 1300 m²

Qn 6
<table>
<thead>
<tr>
<th>8 m</th>
<th>3 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 m</td>
<td>32 m²</td>
</tr>
<tr>
<td>2 m</td>
<td>16 m²</td>
</tr>
<tr>
<td>8 m</td>
<td>3 m</td>
</tr>
</tbody>
</table>

Perimeter of figure = (6 m + 11 m) × 2 = 34 m

Qn 8
<table>
<thead>
<tr>
<th>10 m</th>
<th>5 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 m</td>
<td>60 m²</td>
</tr>
<tr>
<td>3 m</td>
<td>A</td>
</tr>
<tr>
<td>10 m</td>
<td>5 m</td>
</tr>
</tbody>
</table>

Area A = 10 m × 3 m = 30 m²

Qn 9
<table>
<thead>
<tr>
<th>14 m</th>
<th>6 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 m</td>
<td>112 m²</td>
</tr>
<tr>
<td>12 m²</td>
<td>2 m</td>
</tr>
</tbody>
</table>
Unit 10.4 Word Problems Involving Time

Qn 4

Time Mrs Jones reach the park

0745 0800 0810

15min 10min

Time Mrs Jones left the park

0905 0900 0840

5min 20mins

Time taken to exercise

0810 0840

30mins

The exercise lasted 30 minutes.

Qn 5

Time taken for multiple choice questions

→ 5 mins × 10
→ 50 mins

Time taken for work problems

→ 18 mins × 8
→ 144 mins

Time taken altogether

→ 50 mins + 144 mins
→ 194 mins
→ 3 hr 14 mins

1415 1715 1729

John completed his trial paper at 1729 h