MARKS: 150

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>EXPLANATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Accuracy</td>
</tr>
<tr>
<td>CA</td>
<td>Consistent accuracy</td>
</tr>
<tr>
<td>C</td>
<td>Conversion</td>
</tr>
<tr>
<td>J</td>
<td>Justification (Reason/Opinion)</td>
</tr>
<tr>
<td>M</td>
<td>Method</td>
</tr>
<tr>
<td>MA</td>
<td>Method with accuracy</td>
</tr>
<tr>
<td>P</td>
<td>Penalty for no units, incorrect rounding off, etc.</td>
</tr>
<tr>
<td>R</td>
<td>Rounding off</td>
</tr>
<tr>
<td>RT/RG</td>
<td>Reading from a table/Reading from a graph</td>
</tr>
<tr>
<td>S</td>
<td>Simplification</td>
</tr>
<tr>
<td>SF</td>
<td>Correct substitution in a formula</td>
</tr>
<tr>
<td>O</td>
<td>Own opinion</td>
</tr>
</tbody>
</table>

This memorandum consists of 22 pages.
**QUESTION 1 [40 MARKS]**

<table>
<thead>
<tr>
<th>Ques</th>
<th>Solution</th>
<th>Explanation</th>
<th>AS</th>
</tr>
</thead>
</table>
| **1.1.1(a)** | \( \sqrt{M} \)  
\( A = 100\% - (15,6 + 27,2 + 22,4 + 7,2 + 2,3 + 6,0 + 4,4)\% \)  
\( = 14,8\% \checkmark \text{CA} \)  
**OR**  
Number of learners in school = \( \frac{340}{27,2\%} \)  
\( = 1250 \checkmark M \)  
\( A = \frac{185}{1250} \times 100\% \)  
\( = 14,8\% \checkmark \text{CA} \) | 1M subtracting from 100\%  
1CA value of A | 12.4.4 |
| **1.1.1(b)** | Total number of learners = \( \frac{195}{15,6\%} \)  
\( = 1250 \checkmark A \)  
\( B = \frac{4,4\% \times 1250}{100\%} \)  
\( = 55 \checkmark \text{CA} \) | 1A number of learners  
1M using 4,8\%  
1CA value of B | 12.4.4  
12.1.1 |

Copyright reserved
<table>
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</tr>
</thead>
</table>
| 1.1.2 | Percentage = \(7.2\% + 2.4\% + 6\% + 4.4\%\) ✓ M  
\[= 20\% \quad ✓\text{CA}\]  
**OR**  
Percentage = \(\frac{90 + 30 + 75 + 55}{1250} \times 100\%\) ✓ M  
\[= \frac{250}{1250} \times 100\%\]  
\[= 20\% \quad ✓\text{CA}\] | 1M adding  
1CA percentage | 12.4.4 |

(2)
TABLE 1: Time usually taken by all the learners of Vuka High School to travel to school each day

<table>
<thead>
<tr>
<th>Time taken in minutes</th>
<th>Number of learners</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to less than 10</td>
<td>195</td>
</tr>
<tr>
<td>10 to less than 20</td>
<td>340</td>
</tr>
<tr>
<td>20 to less than 30</td>
<td>185</td>
</tr>
<tr>
<td>30 to less than 40</td>
<td>280</td>
</tr>
<tr>
<td>40 to less than 50</td>
<td>90</td>
</tr>
<tr>
<td>50 to less than 60</td>
<td>30</td>
</tr>
<tr>
<td>60 to less than 70</td>
<td>75</td>
</tr>
<tr>
<td>70 to less than 80</td>
<td>B</td>
</tr>
</tbody>
</table>

RELATIONSHIP BETWEEN NUMBER OF LEARNERS AND TIME TAKEN TO TRAVEL TO SCHOOL

4A marks for any four bars correct
1A all bars correct
1CA histogram (bars adjacent to each other – no space between bars)

(6)
<table>
<thead>
<tr>
<th>Ques</th>
<th>Solution</th>
<th>Explanation</th>
<th>AS</th>
</tr>
</thead>
</table>
| 1.2.1(a) | **Average speed** = \( \frac{\text{distance}}{\text{time}} \) \( \checkmark M \)  
\( = \frac{12 \text{ km}}{60 \text{ min}} \) \( \checkmark SF \)  
\( = \frac{12 000 \text{ m}}{60 \text{ min}} \) \( \checkmark C \)  
\( = 200 \text{ metres per minute} \) \( \checkmark CA \)  
**OR**  
Distance = average speed \( \times \) time  
\( 12 \text{ km} = \text{average speed} \times 60 \text{ minutes} \) \( \checkmark SF \)  
\( 12 000 \text{ m} = \text{average speed} \times 60 \text{ minutes} \) \( \checkmark C \)  
\( \frac{12 000 \text{ m}}{60 \text{ min}} = \text{average speed} \) \( \checkmark M \)  
Average speed = 200 metres per minute \( \checkmark CA \) | 1M rearranging the formula  
1SF substitution  
1C conversion  
1CA solution | 12.2.1 |
| 1.2.1(b) | 200 m/minute is too fast for walking and too slow for travelling by car or by taxi. \( \checkmark O \)  
Thus, the learner was cycling/running/travelling in a donkey cart. \( \checkmark J \)  
**OR**  
Any other sensible reason \( \checkmark J \) | 1O Own opinion  
2J justification/reason | 12.1.2 |
| 1.2.2   | The statement of the newspaper was NOT correct. \( \checkmark O \)  
\( \checkmark J \)  
The sample chosen was too small (not representative of the whole country) so cannot be used to make conclusions about the whole country. \( \checkmark J \) | 1O conclusion of the newspaper  
2J representivity of the sample | 12.4.6 |
<table>
<thead>
<tr>
<th>Ques</th>
<th>Solution</th>
<th>Explanation</th>
<th>AS</th>
</tr>
</thead>
</table>
| 1.3  | **Area needed for 1 bicycle** = (1,8 m × 0,45 m) + 0,5 m²  
**CA**  
= 0,81 m² + 0,5 m²  
**CA**  
= 1,31 m²**CA**  
So, area needed for 124 bicycles = 124 × 1,31 m²**A**  
**CA**  
= 162,44 m²**CA**  
| **OR**  | **Area needed for 1 bicycle**  
**MA**  
= (180 cm × 45 cm) + 0,5 × 10 000 cm²  
**C**  
= 8 100 cm² + 5 000 m²  
**CA**  
= 13 100 cm²**CA**  
So, area needed for 124 bicycles = 124 × 13 100 cm²**CA**  
= 1 624 400 cm²**CA**  
= 162,44 m²**A**  
| 1C conversion to m  
1MA area for a bicycle  
1CA additional space  
1A total area for a bicycle  
1A multiplication by 124  
1CA Solution  
1CA correct unit  
1C conversion to cm²  
1MA area for a bicycle  
1A additional space  
1CA total area for a bicycle  
1CA multiplication by 124  
1CA Solution  
1A correct unit (7) | 12.3.1  
12.3.1 |
### Ques 1.4.1

**Mean**

\[
\text{Mean} = \frac{2 + 4 + 6 + 3 + 4 + 5 + 6 + 5 + 7 + 5 + 16 + 9 + 5 + C + 17 + 9}{16}
\]

\[
= \frac{103 + C}{16}
\]

Mean = 7

\[
\therefore \frac{103 + C}{16} = 7
\]

\[
103 + C = 7 \times 16
\]

\[
C = 112 - 103
\]

\[
= 9
\]

**Explanation**

1. Finding the mean (MA)
2. Simplifying (S)
3. Equating to 6 (M)
4. Value of C (CA)

**AS**

12.4.3

### Ques 1.4.2

Responses in ascending order are:

2; 3; 4; 4; 5; 5; 5; 6; 6; 7; 9; 9; 9; 16; 17

**Explanation**

1. Ascending order (CA)

**AS**

12.4.3

### Ques 1.4.3

Mrs James should use the median rather than the mean.

The mean (i.e. 7 people) is not a good measure to use as 10 of the 16 households have less than 7 people. The mean is affected by large numbers.

More than 50% of the households have 5 people or less thus making the median (i.e. 5.5 people) a more accurate measure.

**Explanation**

1. Correct measure (O)
2. Rejecting the mean (J)
3. Accepting the median (J)

**AS**

12.4.3
### QUESTION 2 [33 MARKS]

<table>
<thead>
<tr>
<th>Ques</th>
<th>Solution</th>
<th>Explanation</th>
<th>AS</th>
</tr>
</thead>
</table>
| 2.1.1(a) | \[ P = \frac{4}{2} \quad \checkmark \text{M} \]
\[ = 2 \quad \checkmark \text{CA} \] | 1 M method
1CA value of P | 12.2.1 |
| 2.1.1(b) | \[ 1 = \frac{5}{Q} \quad \checkmark \text{M} \]
\[ Q = \frac{5}{1} \]
\[ = 5 \quad \checkmark \text{CA} \] | 1 M method
1CA value of Q | 12.2.1 |
| OR | \[ 0,8 = \frac{4}{Q} \quad \checkmark \text{M} \]
\[ Q = \frac{4}{0,8} \]
\[ = 5 \quad \checkmark \text{CA} \] | 1 M method
1CA value of Q | (2) |
2.1.2

<table>
<thead>
<tr>
<th>No. of workers</th>
<th>1</th>
<th>2</th>
<th>4</th>
<th>5</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time taken (in hours) for TYPE A</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>0.8</td>
<td>0.5</td>
</tr>
<tr>
<td>Time taken (in hours) for TYPE B</td>
<td>5</td>
<td>2.5</td>
<td>1.25</td>
<td>1</td>
<td>0.625</td>
</tr>
</tbody>
</table>

**TIME TAKEN PER WORKER TO MAKE ONE PAIR OF SANDALS**

**Type A Sandal**
- 2A all points plotted
- 1CA correct graph
- 1A label

**Type B Sandal**
- 2A all points plotted
- 1CA correct graph
- 1A label

2.1.3

Inverse proportion or Indirect proportion ✓✓CA

2CA type of proportion

(2)
<table>
<thead>
<tr>
<th>Ques</th>
<th>Solution</th>
<th>Explanation</th>
<th>AS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2.1</td>
<td>Jabu's wages = R11,25/hour × 40 hours ✓M</td>
<td>1M calculating Jabu's wages</td>
<td>12.1.3</td>
</tr>
<tr>
<td></td>
<td>= R450,00 ✓ CA</td>
<td>1CA Jabu's wages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓M ✓ CA</td>
<td>1M calculating worker's wages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Each worker earns 80% of R450,00 = R360,00</td>
<td>1CA worker's wages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total paid = R450,00 + 3 × R360 ✓M</td>
<td>1M adding all wages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= R1 530,00 ✓ CA</td>
<td>1CA total wages</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>OR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jabu's wages = R11,25/hour × 40 hours ✓M</td>
<td>1M calculating Jabu's wages</td>
<td>12.2.1</td>
</tr>
<tr>
<td></td>
<td>= R450,00 ✓ CA</td>
<td>1CA Jabu's wages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓M ✓ CA</td>
<td>1M calculating worker's wages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Each worker earns 80% of R11,25 = R9,00 ✓ CA</td>
<td>1CA worker's wages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total paid = R450,00 + 3 × R9,00/hour × 40 hours ✓M</td>
<td>1M adding all wages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= R1 530,00 ✓ CA</td>
<td>1CA total wages</td>
<td></td>
</tr>
<tr>
<td>2.2.2</td>
<td>Overtime pay per hour = 1,5 × R11,25 ✓M</td>
<td>1M calculating overtime rate</td>
<td>12.1.3</td>
</tr>
<tr>
<td></td>
<td>= R16,875</td>
<td>1CA overtime rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>≈ R16,88 ✓ CA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jabu's earning = R450,00 + R16,88/hour × 8 hours ✓M</td>
<td>1M calculating Jabu's wages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= R450,00 + R135,04 ✓ CA</td>
<td>1CA overtime pay</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= R585,04 ✓ CA</td>
<td>1CA total earnings</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>OR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓A ✓ A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jabu's earning = R450,00 + 8 × (1,5 × R11,25) ✓M</td>
<td>1A number of hours overtime</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= R450,00 + R135,00 ✓ CA</td>
<td>1A multiplying by overtime rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= R585,00 ✓ CA</td>
<td>1M calculating Jabu's wages</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1CA overtime pay</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1CA total earnings</td>
<td></td>
</tr>
<tr>
<td>Ques</td>
<td>Solution</td>
<td>Explanation</td>
<td>AS</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------------------------------------------</td>
<td>----------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>2.3.1(a)</td>
<td>Percentage = 25% ✓ ✓ A</td>
<td>2A percentage</td>
<td>12.4.3</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Percentage = ( \frac{3}{12} \times 100% ) ✓ A</td>
<td>1A number of days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= 25% ✓ CA</td>
<td>1CA percentage</td>
<td>(2)</td>
</tr>
<tr>
<td>2.3.1(b)</td>
<td>Percentage = 50% ✓ ✓ A</td>
<td>2A percentage</td>
<td>12.4.3</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Percentage = ( \frac{6}{12} \times 100% ) ✓ A</td>
<td>1A number of days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= 50% ✓ CA</td>
<td>1CA percentage</td>
<td>(2)</td>
</tr>
<tr>
<td>2.3.2(a)</td>
<td>P(3 Type B) = ( \frac{2}{12} ) ✓ A</td>
<td>1A number of days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= ( \frac{1}{6} )</td>
<td>1A total number of days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= 0,1666…</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( \approx 0,167 )</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>2.3.2(b)</td>
<td>P(more than 4 Type A) = ( \frac{6}{12} ) ✓ A</td>
<td>1A number of days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= ( \frac{1}{2} )</td>
<td>1A total number of days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= 0,25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2)</td>
<td></td>
</tr>
</tbody>
</table>
### QUESTION 3 [25 MARKS]

<table>
<thead>
<tr>
<th>Ques</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1.1</td>
<td>Distance around the pencil ( = 6 \times 3 \text{ mm} ) ✓M&lt;br&gt;( = 18 \text{ mm} ) ✓A&lt;br&gt;Length of pencil covered by beads ( = \frac{1}{3} \times 180 \text{ mm} ) ✓C&lt;br&gt;( = 60 \text{ mm} ) ✓A&lt;br&gt;Surface area of pencil covered by beads ( = 18 \text{ mm} \times 60 \text{ mm} ) ✓MA&lt;br&gt;( = 1080 \text{ mm}^2 ) ✓CA</td>
</tr>
<tr>
<td></td>
<td><strong>Explaination</strong></td>
</tr>
<tr>
<td></td>
<td>1M multiplying by 6&lt;br&gt;1A distance&lt;br&gt;1C conversion&lt;br&gt;1A length&lt;br&gt;1MA use of area formula&lt;br&gt;1CA area of beaded section&lt;br&gt;1MA use of area formula&lt;br&gt;1C conversion&lt;br&gt;1CA width&lt;br&gt;1CA area of one beaded side&lt;br&gt;1CA multiplying by 6&lt;br&gt;1CA area of beaded section (6)</td>
</tr>
</tbody>
</table>

**OR**

Area of one of the beaded sides of the pencil \( = 3 \text{ mm} \times (\frac{1}{3} \times 180 \text{ mm}) \) ✓MA ✓C ✓CA<br>\( = 3 \text{ mm} \times 60 \text{ mm} \)<br>\( = 180 \text{ mm}^2 \) ✓CA

\( \therefore \) Surface area of the pencil covered by beads<br>\( = 6 \times 180 \text{ mm}^2 \) ✓CA<br>\( = 1080 \text{ mm}^2 \) ✓CA
<table>
<thead>
<tr>
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<th>Solution</th>
<th>Explanation</th>
<th>AS</th>
</tr>
</thead>
</table>
| 3.1.2 | Distance around the pencil = 18 mm \(M\)  
\(\because\) The number of beads = \(18 \text{ mm} \div 1,5 \text{ mm}\)  
\(= 12 \text{ CA}\) | 1M dividing  
1CA number of beads | 12.3.1  
12.1.1 |
|       | Length of beaded area = 60 mm \(M\)  
The number of beads = \(60 \text{ mm} \div 1,5 \text{ mm}\)  
\(= 40 \text{ CA}\) | 1M dividing  
1CA number of beads | |
|       | So the number of beads needed = \(12 \times 40 \text{ CA}\) \(= 480 \text{ CA}\) | 1M multiplying  
1CA solution | |
| OR    | Width of one side of pencil = 3 mm \(M\) \(A\)  
Number of beads needed for width = \(3 \text{ mm} \div 1,5 \text{ mm} = 2\) | 1M dividing  
1A number on width  
1M dividing  
1A number on length | 12.1.1  
12.3.1 |
|       | Length of pencil to be beaded = 60 mm \(M\) \(A\)  
Number of beads needed for length = \(60 \text{ mm} \div 1,5 \text{ mm} = 40\) | 1A number on side | |
|       | Number of beads needed for one side of pencil = \(2 \times 40 \text{ CA}\)  
\(= 80\) beads | 1A number on length | |
|       | Number of beads needed for six sides of pencil = \(6 \times 80 \text{ CA}\)  
\(= 480\) \(\text{ CA}\) | 1CA number on six sides | (6) |
### Ques 3.2.1

<table>
<thead>
<tr>
<th>Solution</th>
<th>Explanation</th>
<th>AS</th>
</tr>
</thead>
</table>
| Cost of labour (for beading) = \( \frac{5}{60} \times R15,50 \)  
\[= R1,29 \] | 1MA fraction and multiplication  
1CA cost of labour | 12.1.1 |
| Cost of beads = \( \frac{480}{1000} \times R8,00 \)  
\[= R3,84 \] | 1MA fraction and multiplication  
1CA cost of beads | |
| Cost of pencil = \( \frac{R30,00}{12} \)  
\[= R2,50 \] | 1MA dividing by 12  
1CA cost of one pencil | |
| Total cost price of the beaded pencil  
\[= R1,29 + R3,84 + R2,50 \]  
\[= R7,63 \] | 1CA total cost of a pencil | |
| % Selling price = 100% + 35% = 135% | | |
| Selling price = \( \frac{135}{100} \times R7,63 \)  
\[= 1,35 \times R7,63 \]  
\[= R10,30 \] | 1M calculating increase %  
1CA cost of pencil | (9) |
<table>
<thead>
<tr>
<th>Ques</th>
<th>Solution</th>
<th>Explanation</th>
<th>AS</th>
</tr>
</thead>
</table>
| 3.2.2 | Price of pencil = R10,30  
R1 = ARS 0,54895  
R10,30 = ARS 0,54895 × 10,30 ✓A  
= ARS 5,654185  
Price of one pencil = ARS 5,654185 ✓CA  
Number of pencils = \( \frac{\text{ARS 100}}{\text{ARS 5,654185}} \) ✓M  
= 17,686  
≈ 17 ✓CA | 1A using the exchange rate  
1CA price of pencil in Argentinean peso  
1M finding number of pencils  
1CA number of pencils | 12.1.1 |

Please turn over
**QUESTION 4 [34 MARKS]**

<table>
<thead>
<tr>
<th>Ques</th>
<th>Solution</th>
<th>Explanation</th>
<th>AS</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1.1</td>
<td><strong>METHOD 1</strong>&lt;br&gt;Discount&lt;br&gt;(= 5% \text{ of } R139\ 900)</td>
<td><strong>METHOD 2</strong>&lt;br&gt;Price after discount&lt;br&gt;(= 95% \text{ of } R139\ 900)</td>
<td>12.1.3</td>
</tr>
<tr>
<td></td>
<td>(= \frac{5}{100} \times R139\ 900)</td>
<td>(= \frac{95}{100} \times R139\ 900)</td>
<td>1M calculating %</td>
</tr>
<tr>
<td></td>
<td>(= 0,05 \times R139\ 900)</td>
<td>(= 0,95 \times R139\ 900)</td>
<td>1A calculating 5%</td>
</tr>
<tr>
<td></td>
<td>(= R6\ 995,00 \checkmark A)</td>
<td>(= R132\ 905 \checkmark CA)</td>
<td>1CA cash price (ex VAT)</td>
</tr>
<tr>
<td></td>
<td>Price after discount&lt;br&gt;(= R139\ 900 - R6\ 995,00)</td>
<td>Total cost including VAT&lt;br&gt;(= 114% \text{ of } R132\ 905)</td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td>(= R132\ 905 \checkmark CA)</td>
<td>(= \frac{114}{100} \times R132\ 905)</td>
<td>1M subtracting from 100%</td>
</tr>
<tr>
<td></td>
<td>VAT&lt;br&gt;(= 14% \text{ of } R132\ 905)</td>
<td>(= 1,14 \times R132\ 905)</td>
<td>1M calculating percentage</td>
</tr>
<tr>
<td></td>
<td>(= \frac{14}{100} \times R132\ 905)</td>
<td>(= R151\ 511,70 \checkmark CA)</td>
<td>1CA discounted price</td>
</tr>
<tr>
<td></td>
<td>(= R18\ 606,70 \checkmark CA)</td>
<td></td>
<td>1M adding 14%</td>
</tr>
<tr>
<td></td>
<td>Total cost including VAT&lt;br&gt;(= R132\ 905 + R18\ 606,70)</td>
<td>1CA price including VAT&lt;br&gt;(= R151\ 511,70 + R18\ 606,70)</td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td>(= R151\ 511,70 \checkmark CA)</td>
<td>1CA calculating VAT</td>
<td>1CA cash price (incl. VAT)</td>
</tr>
<tr>
<td></td>
<td>Pre-delivery cost&lt;br&gt;(= 0,75% \text{ of } R151\ 511,70)</td>
<td>1M calculating %&lt;br&gt;(= 0,0075 \times R151\ 511,70)</td>
<td>1M calculating %&lt;br&gt;(= R1\ 136,34 \checkmark CA)</td>
</tr>
<tr>
<td></td>
<td>(= \frac{0,75}{100} \times R151\ 511,70 \checkmark M)</td>
<td>1CA delivery cost</td>
<td>1CA delivery cost</td>
</tr>
<tr>
<td></td>
<td>(= 0,0075 \times R151\ 511,70)</td>
<td></td>
<td>1CA purchase price</td>
</tr>
<tr>
<td></td>
<td>(= R1\ 136,34 \checkmark CA)</td>
<td></td>
<td>(8)</td>
</tr>
</tbody>
</table>

**Pre-delivery cost**

\[= 0,75\% \text{ of } R151\ 511,70\]

\[= \frac{0,75}{100} \times R151\ 511,70 \checkmark M\]

\[= 0,0075 \times R151\ 511,70\]

\[= R1\ 136,34 \checkmark CA\]

**Full purchase cash price**

\[= R151\ 511,70 + R1\ 136,34 + R1\ 400,00 + R4\ 950,00\]

\[= R158\ 998,04 \checkmark CA\]
### Ques 4.1.2

**Solution**

Deposit = 20% of R158 998,04

\[ = R31 799,61 \checkmark \text{CA} \]

Amount to be financed = R158 998,04 – R31 799,61 \checkmark \text{M}

\[ = R127 198,43 \checkmark \text{CA} \]

**OR**

% to be financed = 100% – 20%

\[ = 80\% \checkmark \text{CA} \]

Amount to be financed = \[\frac{80}{100} \times R158 998,04 \checkmark \text{M}\]

\[ = 0,8 \times R158 998,04 \]

\[ = R127 198,43 \checkmark \text{CA} \]

\[ A = P(1 + i \times n) \checkmark \text{SF} \checkmark \text{A} \]

\[ = R127 198,43 \times (1 + 0,12 \times 5) \]

\[ = R203 517,49 \checkmark \text{CA} \]

**METHOD 1**

Monthly instalment

\[ = \frac{R203 517,49}{60} \checkmark \text{M} \]

\[ = R3 391,95816.. \]

\[ \approx R3 391,96 \checkmark \text{CA} \]

The monthly instalment is over by R7,04 \checkmark \text{J}

**METHOD 2**

R3 399,00 \times 60 \checkmark \text{M}

\[ = R203 940,00 \checkmark \text{CA} \]

The monthly instalment is over by R422,51 over the 60 months. \checkmark \text{J}

1CA deposit amount

1M subtracting

1CA amount financed

1CA correct %

1M calculating %

1CA amount financed

1SF substituting P

1A value of \(i\)

1CA amount to be repaid

1M multiplying by 60

**OR** 1M dividing by 60

1CA monthly instalment

**OR** 1CA total paid

1J conclusion

(9)
<table>
<thead>
<tr>
<th>Ques</th>
<th>Solution</th>
<th>Explanation</th>
<th>AS</th>
</tr>
</thead>
</table>
| 4.2  | Area to be paved = 2.99 m × 10.35 m  ✓MA  
= 30.9465 m² ✓CA  
Area of the top face of a brick = 23 cm × 11.5 cm  ✓MA  
= 264.5 cm² ✓A  
= 0.02645 m² ✓C  
Number of bricks = \[ \frac{30.9465 \text{ m}^2}{0.02645 \text{ m}^2} \] ✓M  
= 1170 bricks ✓CA  
Number of pallets = \[ \frac{1170}{354} \] ✓M  
= 3.305  
So, 4 pallets will be needed ✓CA  | 1MA using area formula  
1CA paving area  
1MA using area formula  
1A area of each brick  
1C converting  
1M dividing  
1CA number of bricks  
1M dividing by 160  
1CA number of pallets | 12.3.1 |
### Method 1

**Number bricks lengthwise**

\[
\text{Number of bricks} = \frac{299 \text{ cm}}{23 \text{ cm}}
\]

= 13 bricks ✓CA

### Method 2

**Number of bricks lengthwise**

\[
\text{Number of bricks} = \frac{299 \text{ cm}}{11.5 \text{ cm}}
\]

= 26 bricks ✓CA

### Method 1

**Number of bricks breadthwise**

\[
\text{Number of bricks} = \frac{1035 \text{ cm}}{11.5 \text{ cm}}
\]

= 90 bricks ✓CA

### Method 2

**Number of bricks breadthwise**

\[
\text{Number of bricks} = \frac{1035 \text{ cm}}{23 \text{ cm}}
\]

= 45 bricks ✓CA

### Total number of bricks

\[
\begin{align*}
\text{Method 1:} & \quad 13 \times 90 \quad \text{✓CA} \\
\text{Method 2:} & \quad 26 \times 45 \\
\end{align*}
\]

= 1 170 bricks ✓CA

### Number of pallets

\[
\text{Number of pallets} = \frac{1170}{354} \quad \text{✓M}
\]

= 3,305

So, 4 pallets will be needed ✓CA

### Delivery Charge

\[
\text{Delivery charge} = \text{R95} + \text{R5.45} \times (\text{no of kilometres above 10 km})
\]

**OR**

\[
\text{Delivery} = \text{R95} + \text{R5.45} \times (\text{total distance} – 10 \text{ km})
\]
### 4.3.2 Delivery charge by ABC Transport

\[
\text{Delivery charge} = R95 + R5.45 \times (35 \text{ km} - 10 \text{ km}) \\
= R95 + R5.45 \times 25 \text{ km} \\
= R 231.25
\]

Friend's charge = R250.00

Ravi should use ABC transport because he would save R18.75

---

1SF substitution

1A delivery charge

1CA choice

2J justification

(5)
### Question 5 [18 MARKS]

<table>
<thead>
<tr>
<th>Ques</th>
<th>Solution</th>
<th>Explanation</th>
<th>AS</th>
</tr>
</thead>
</table>
| 5.1.1 | Capacity = $2.5 \text{ m} \times 2.5 \text{ m} \times 2 \text{ m}$ ✓SF  
  = $12.5 \text{ m}^3$ ✓CA  
  = $12.5 \text{ k}\ell$ ✓C  
 |  | 1SF substitution  
 1CA computation  
 1C converting to k\ell | 12.3.1  
 12.3.2  
 (3) |
| 5.1.2 | 65% of capacity = 0,65 of $12.5 \text{ k}\ell$  
  = $8,125 \text{ k}\ell$ ✓A  
 Full output = $3.6 \text{ k}\ell$/hour  
  2/3 of output = $2/3 \times 3.6 \text{ k}\ell$/hour ✓M  
  = $2.4 \text{ k}\ell$/hour ✓CA  
 Time taken to fill 65% = $\frac{8,125 \text{ k}\ell}{2.4 \text{ k}\ell$/hour} ✓M  
  = 3,385… hours ✓CA  
  = 3 hours + 0,385… × 60 min  
  = 3 hours + 23,125 minutes  
  = 3 h 24 min ✓CA | 1A 65% of tank  
 1M multiplication  
 1CA operating output rate  
 1M finding time  
 1CA time in hours  
 1CA time in minutes and hours | 12.1.1  
 12.2.1  
 12.3.2  
 (6) |
| 5.2.1 | Daily water consumption  
 ✓M  
  = $40 \times 90 \ell + 20 \times 50 \ell + 30 \times 50 \ell + 50 \times 5 \ell$ ✓M  
  = $6 \times 350 \ell$ ✓CA  
  = $6,350 \text{ k}\ell$ ✓C  
 | 2M substitution  
 1CA simplification  
 1C conversion | 12.2.1  
 12.3.1  
 12.3.2  
 (4) |
<table>
<thead>
<tr>
<th>Ques</th>
<th>Solution</th>
<th>Explanation</th>
<th>AS</th>
</tr>
</thead>
</table>
| 5.2.2 | Water needed for ten days = $6,35 \times 10 \quad \checkmark M$  
$= 63,5 \text{ kl}$  
$= 63,5 \text{ m}^3 \quad \checkmark C$ | 1M multiplication | 12.1.1 |
| | $3,14 \times (\text{radius})^2 \times 2 = 63,5 \text{ m}^3 \quad \checkmark SF$ | 1SF substitution | |
| | $(\text{radius})^2 = \frac{63,5 \text{ m}^3}{3,14 \times 2}$ | 1CA simplification | |
| | $(\text{radius})^2 = 10,111\ldots \text{ m}^2 \quad \checkmark CA$ | 1CA solution | |
| | radius = $\sqrt{10,111\ldots \text{ m}^2}$  
| radius = 3,17985\ldots \text{ m}  
| radius = 3,18 \text{ m} \quad \checkmark CA | | |

**TOTAL:** 150