MARKS: 150

<table>
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<tr>
<th>Symbol</th>
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<tr>
<td>M</td>
<td>Method</td>
</tr>
<tr>
<td>MA</td>
<td>Method with Accuracy</td>
</tr>
<tr>
<td>CA</td>
<td>Consistent Accuracy</td>
</tr>
<tr>
<td>A</td>
<td>Accuracy</td>
</tr>
<tr>
<td>C</td>
<td>Conversion</td>
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<tr>
<td>S</td>
<td>Simplification</td>
</tr>
<tr>
<td>RT /RG</td>
<td>Reading from a table/Reading from a graph</td>
</tr>
<tr>
<td>F</td>
<td>Choosing the correct formula</td>
</tr>
<tr>
<td>SF</td>
<td>Substitution in a formula</td>
</tr>
<tr>
<td>O</td>
<td>Opinion</td>
</tr>
<tr>
<td>P</td>
<td>Penalty, e.g. for no units, incorrect rounding off etc.</td>
</tr>
<tr>
<td>R</td>
<td>Rounding Off/Reason</td>
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This memorandum consists of 11 pages.
### KEY TO TOPIC SYMBOL:

**F** = Finance; **M** = Measurement; **P** = Scale, Maps, Plans and other representations  
**DH** = Data Handling; **L** = Likelihood and Probability

### QUESTION 1 [36]

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<tbody>
<tr>
<td>1.1.1</td>
<td>R28 955,47 ✓A</td>
<td>1A answer</td>
<td><strong>F</strong> L1</td>
</tr>
<tr>
<td>1.1.2</td>
<td>Amount (in rand) = 2 39,10 + 3 100,00 + 110,00 + 500,00 = 5 949,10 ✓A</td>
<td>1M adding correct amounts 1A answer</td>
<td><strong>F</strong> L1</td>
</tr>
</tbody>
</table>
| 1.1.3 | A = R31 194,57 – R850,00 ✓M  
  = R30 344,57 ✓A  
  B = R33 798,11 – R33 540,64 ✓M  
  = R257,47 ✓A | 1M subtracting correct amounts 1A value of A 1M subtracting correct amounts 1A value of B | **F** L1 |
| 1.1.4 | Percentage = \( \frac{\text{R31,74}}{\text{R2 239,10}} \times 100\% \) ✓M  
  = 1,42% ✓A | 1M using correct values 1M calculating percentage 1A answer | **F** L1 |
<p>| 1.1.5 | 2 weeks ✓✓A | 2A answer | <strong>M</strong> L1 |</p>
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<th>Ques</th>
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</table>
| 1.2.1 | \[
\text{Cost} = 80c + \frac{30}{60} \times 80c \\
= 80c + 40c \\
= 120c \\
= R1,20
\] | 1M writing 90 seconds in minutes  \\
1S simplification  \\
1CA converting | F  \\
M  \\
L1 (2)  \\
L2 (1) |
| 1.2.2(a) | \[
\text{P} = 50 \times 80c \quad \text{M/A} \\
= 4 000c \\
= R40,00 \\
\text{Q} = 90 \times 80c \quad \text{M/A} \\
= 7 200c \\
= R72,00 \\
\text{R} = 150 + \frac{120}{0,8} \quad \text{M/A} \\
= 150 + 150 \quad \text{S} \\
= 300 \\
\] | 1M/A multiplying chargeable minutes by 80c/R0,8  \\
1CA value of P  \\
1M/A multiplying chargeable minutes by 80c/R0,8  \\
1CA value of Q  \\
1M/A adding free minutes and minutes charged  \\
1S simplifying  \\
1CA value of R | F  \\
L1 (4)  \\
L2 (3) |
| 1.2.2(b) | **PANTSULA'S VARIABLE COSTS**  \\
1A horizontal line from 100 to 150  \\
1A point (150; 0)  \\
1A point (200; 40)  \\
1CA point (300; 120) | F  \\
L1 (2)  \\
L2 (2) |
<table>
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<tr>
<th>Ques</th>
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<th>Topic</th>
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</thead>
<tbody>
<tr>
<td>1.2.2(c)</td>
<td>Total monthly cost = R299,00 + (50 + 40) \times R0,80 = R299,00 + R72,00 \checkmark S = R371,00 \checkmark CA</td>
<td>1SF fixed monthly cost 1A landline to landline minutes 1A landline to cellphone 1S simplification 1CA total cost</td>
<td>F L1 (1) L2 (2) L3 (1)</td>
</tr>
<tr>
<td>1.3.1</td>
<td>Amount = R25 000,00 + R1 140,00 = R26 140,00</td>
<td>1M adding 1A answer</td>
<td>F L1 (2)</td>
</tr>
<tr>
<td>1.3.2</td>
<td>I = R26 140,00 \times 0,246 \times 4 = R25 721,76</td>
<td>1SF substitution 1A value of r 1CA answer</td>
<td>F L1 (2) L2 (1)</td>
</tr>
</tbody>
</table>
**QUESTION 2 [26]**

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</table>
| 2.1.1 | ✓SF  
\[ \frac{356\degree - 32\degree}{1,8} = 180\degree \] ✓A | 1SF substitution 1A answer | M L1 (2) |
| 2.1.2 | ✓A  
\[ 250 \text{ g} = 2 \times 125 \text{ g} \] 
Cost = \( 2 \times R8,99 \) 
\[ = R17,98 \] ✓CA | 1A multiplying by 2 1CA answer | F L1 (2) |
| 2.1.3 | ✓M  
\[ \text{Ratio} = \frac{25 \text{ g}}{75 \text{ g}} = 1:3 \] ✓A | 1M using correct values 1A answer | M L1 (2) |
| 2.1.4 | ✓M  
\[ \text{Reading} = 116 \text{ g} + 140 \text{ g} \] 
\[ = 256 \text{ g} \] ✓A | 1M adding 1A answer | M L1 (2) |
| 2.1.5 | ✓M  
\[ \text{Time} = 14:40 + 0:35 = 14:75 = 15:15 \] ✓A | 1M adding 1A correct time | M L1 (2) |
| 2.1.6 | ✓M  
\[ 140 \text{ g} = \frac{140}{1000} \times 2,2 \text{ lb.} \] 
\[ = 0,308 \text{ lb.} \] ✓A | 1M multiplying 1A answer | M L1 (1) L2 (1) |
| 2.1.7 | 15 espresso cups = 75 g mixed frozen berries  
20 espresso cups = \( \frac{20 \times 75}{15} \) g mixed frozen berries ✓M  
\[ = 100 \text{ g} \] ✓A | 1M using ratio 1A answer | M L1 (1) L2 (1) |
| ✓OR | ✓M  
\[ 20 \text{ espresso cups} = 15 \times 1\frac{1}{3} \] 
\[ = 75 \text{ g} \times 1\frac{1}{3} \] ✓M 
\[ = 100 \text{ g} \] ✓A | 1M multiplying 1A answer | M L1 (1) L2 (1) |
<table>
<thead>
<tr>
<th>Ques</th>
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<th>Topic</th>
</tr>
</thead>
</table>
| 2.2.1  | \( P = 3,142 \times 2,2 \text{ m} \checkmark \text{SF} \) \[ \]
|        | = 6,9124 \text{ m} \checkmark \text{S} \[ \]
|        | \( \approx 6,91 \text{ m} \checkmark \text{CA} \) \[ \]
|        | 1SF substitution \[ \]
|        | 1S simplification \[ \]
|        | 1R rounding \[ \] \[ \]
|        | \( \checkmark \text{CA} \) \[ \]
|        | \( \checkmark \text{S} \) \[ \]
|        | \( \checkmark \text{A} \) \[ \]
|        | L1 (3) \[ \]
| 2.2.2  | Surface Area = 3,142 \times (2,2 \text{ m})^2 + 6,91 \text{ m} \times 6,5 \text{ m} \[ \]
|        | = 15,20728 \text{ m}^2 + 44,915 \text{ m}^2 \checkmark \text{S} \[ \]
|        | = 60,12 \text{ m}^2 \checkmark \text{CA} \[ \]
|        | 2SF substitution \[ \]
|        | 1S simplification \[ \]
|        | 1CA answer \[ \] \[ \]
|        | \( \checkmark \text{CA} \) \[ \]
|        | \( \checkmark \text{S} \) \[ \]
|        | \( \checkmark \text{A} \) \[ \]
|        | L1 (2) \[ \]
|        | L2 (2) \[ \]
| 2.2.3  | Perimeter = 2 \times (6,5 \text{ m} + 4,4 \text{ m}) \checkmark \text{SF} \[ \]
|        | = 21,8 \text{ m} \checkmark \text{A} \[ \]
|        | 1SF substitution \[ \]
|        | 1A answer \[ \] \[ \]
|        | \( \checkmark \text{S} \) \[ \]
|        | \( \checkmark \text{A} \) \[ \]
|        | L1 (2) \[ \]
| 2.2.4  | Volume = 6,5 \text{ m} \times 4,4 \text{ m} \times 0,05 \text{ m} \[ \]
|        | = 1,43 \text{ m}^3 \checkmark \text{S} \checkmark \text{A} \[ \]
|        | 1SF substitution \[ \]
|        | 1S simplification \[ \]
|        | 1A correct unit \[ \] \[ \]
|        | \( \checkmark \text{S} \) \[ \]
|        | \( \checkmark \text{A} \) \[ \]
|        | L1 (3) \[ \]

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## QUESTION 3 [29]

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<tr>
<td>3.1.1</td>
<td>Other Christian churches ✓✓ A</td>
<td>2A answer (2)</td>
<td>DH L1 (2)</td>
</tr>
<tr>
<td>3.1.2</td>
<td>Total = 11,1 + 8,2 + 6,8 + 6,7 + 3,8 + 7,1 + 36 ✓ M&lt;br&gt; = 79,7 ✓ A</td>
<td>1M adding correct values&lt;br&gt; 1A answer (2)</td>
<td>DH L1 (2)</td>
</tr>
<tr>
<td>3.1.3</td>
<td>Range = 36 – 1,4 ✓ M&lt;br&gt; = 34,6 ✓ A</td>
<td>1M subtracting correct values&lt;br&gt; 1A answer (2)</td>
<td>DH L2 (2)</td>
</tr>
<tr>
<td>3.1.4</td>
<td>U; M; O; A; UD; MC; C; CP; Z; N; OC ✓✓ A</td>
<td>2A answer (2)</td>
<td>DH L1 (2)</td>
</tr>
<tr>
<td>3.1.5</td>
<td><img src="image" alt="Percentage of People Belonging to Religious Denominations" /></td>
<td>1A point Z&lt;br&gt; 1A point MC&lt;br&gt; 1A point A&lt;br&gt; 1A point OC&lt;br&gt; 1A point N (5)</td>
<td>DH L1 (5)</td>
</tr>
<tr>
<td>3.1.6</td>
<td>N = 15,1% of 48 810 427 ✓ M&lt;br&gt; = ( \frac{15,1}{100} \times 48 810 427 )&lt;br&gt; = 7 370 374,477 ✓ A&lt;br&gt; ≈ 7 370 374</td>
<td>1M using correct percentage&lt;br&gt; 1A answer (2)</td>
<td>DH L1 (2)</td>
</tr>
<tr>
<td>3.1.7</td>
<td>P(Catholic) = 7,1% ✓✓ A&lt;br&gt; = 0,071</td>
<td>2A correct probability (2)</td>
<td>L L2 (2)</td>
</tr>
<tr>
<td>Ques</td>
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<td>Explanation</td>
<td>Topic</td>
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</tr>
<tr>
<td>3.2.1</td>
<td>55 years and older ✓✓A</td>
<td>2A answer</td>
<td>DH L2 (2)</td>
</tr>
<tr>
<td>3.2.2</td>
<td>Percentage = 100 – 21 – 28,4 – 5,9 – 6,8 ✓M = 37,9 ✓A</td>
<td>1M subtracting from 100% 1A answer</td>
<td>DH L2 (2)</td>
</tr>
<tr>
<td>3.2.3</td>
<td>25 – 54 years ✓✓A</td>
<td>2A answer</td>
<td>DH L1 (2)</td>
</tr>
<tr>
<td>3.2.4</td>
<td>Median = 50% Median falls in the 25–54 years age group ✓✓A</td>
<td>2A answer</td>
<td>DH L2 (2)</td>
</tr>
<tr>
<td>3.2.5</td>
<td>✓SF $\frac{48810427 - \text{Pop 2011}}{\text{Pop 2011}} \times 100% = -0,412%$</td>
<td>2SF substitution</td>
<td>DH L3 (4)</td>
</tr>
</tbody>
</table>

\[
\frac{48810427 - \text{Pop 2011}}{\text{Pop 2011}} \times 100\% = -0,412\% \\
48810427 - \text{Pop 2011} = -0,00412 \times \text{Pop 2011} \\
48810427 = 0,99588 \times \text{Pop 2011} ✓S \\
\frac{48810427}{0,99588} = \text{Pop 2011} \\
49012357,91 = \text{Pop 2011} \\
\therefore \text{Population in 2011} \approx 49012358 ✓\text{CA} | 1S simplification 1CA answer | DH L3 (4) |
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<th>Explanation</th>
<th>Topic</th>
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<tbody>
<tr>
<td>4.1.1</td>
<td>✓✓ ✓ A</td>
<td>2A answer</td>
<td>P L1 (2)</td>
</tr>
<tr>
<td>4.1.2</td>
<td>✓✓ ✓ A Lounge and Bedroom 3</td>
<td>1A understanding direction 1A Lounge 1A Bedroom 3</td>
<td>P L1 (2) L2 (1)</td>
</tr>
<tr>
<td>4.1.3</td>
<td>✓✓ 1 unit of measure on the plan represents 110 units on the ground</td>
<td>1A unit of measure 1A representation on the ground</td>
<td>P L1 (1) L2 (1)</td>
</tr>
<tr>
<td>4.1.4</td>
<td>7.6 cm ✓✓ A</td>
<td>2A answer</td>
<td>P L1 (1) L2 (1)</td>
</tr>
</tbody>
</table>
| 4.1.5 | Actual length = 8.6 cm × 110 cm ✓ M  
  = 946 cm ✓ S  
  = 9.46 cm ✓ C | 1M using the scale 1S simplification 1C conversion | P L1 (1) L2 (2) |
| 4.2.1 | De Beers ✓✓ A | 2A answer | P L1 (2) |
| 4.2.2 | From Chapel Street:  
  • Turn left into York ✓ A  
  • Turn right into Jones ✓ A  
  • After passing Old Main, Jones becomes Transvaal  
  • Turn right into Cemetery ✓ A  
  • Turn left into Evans ✓ A  
  • Enter the cemetery on the right ✓ A  
  OR  
  From Chapel Street:  
  • Proceed with Chapel until Chapel becomes Crossman ✓ A  
  • Turn left into Carr and proceed until the junction with Goodwin ✓ A  
  • At the junction turn left into Cemetery ✓ A  
  • Turn right into Evans ✓ A  
  • Enter the cemetery on the right ✓ A  
  Any other feasible set of directions | 5A as per directions | P L2 (3) L3 (2) |
| 4.2.3 | South Circular/New Main ✓✓ A | 2A answer | P L2 (2) |
### QUESTION 5 [38]

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| 5.1.1 | Pension = 7,5% of R28 754,50 ✓ M  
= \( \frac{7,5}{100} \times R28\,754,50 \)  
= R2 156,5875 ✓ S  
≈ R2 156,59 ✓ A | 1M finding percentage  
1S simplification  
1A answer correct to the nearest cent | F L1 (3) |
| 5.1.2 | Annual medical aid = 12 × R1 434,70 ✓ M  
= R17 216,40 ✓ A | 1M multiplying by 12  
1A answer | F L1 (2) |
| 5.1.3 | Calculate annual salary ✓ A  
Add 13th cheque to the annual salary ✓ A  
Subtract annual medical aid contribution and ✓ A  
Subtract pension contribution ✓ A  
Balance gives taxable income ✓ A | 1A annual salary  
1A 13th cheque  
1A medical aid  
1A pension  
1A balance | F L2 (5) |
<p>| 5.1.4(a) | R21 200 ✓ ✓ A | 2A answer | F L1 (2) |
| 5.1.4(b) | After 2 years (Accept: After 3 years) ✓ ✓ ✓ A | 3A answer | F L2 (3) |
| 5.1.5(a) | C ✓ ✓ A | 2A answer | F L1 (2) |
| 5.1.5(b) | R11 440 ✓ ✓ A | 2A answer | F L2 (2) |
| 5.2.1(a) | Length = 5 cm ✓ ✓ A | 2A answer | M L1 (2) |
| 5.2.1(b) | Scale = 1 : 7,75 ✓ ✓ A | 2A answer | M L2 (2) |
| 5.2.2(a) | 31 ✓ A | 1A answer | DH L1 (1) |
| 5.2.2(b) | R12,00 ✓ A | 1A answer | DH L1 (1) |</p>
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| 5.2.2(c) | Mean = \[
\frac{0+6+6+9+9+10+10+11+11+11+12+20+25+30}{16}
\]
\[= R \frac{191}{16}, \text{ Simplifying}
\]
\[\approx R11,94\] | 1M adding values
1A number of girls
1S simplifying
1CA answer | DH
L1 (2)
L2 (2) |
| 5.2.2(d) | Median = \[
\frac{10+11}{2}, \text{ Identifying central values}
\]
\[= R \frac{21}{2}, \text{ Finding mean}
\]
\[= R10,5\] | 1M finding mean
1CA answer | DH
L1 (1)
L1 (2) |
| 5.2.2(e) | Difference = R30 – R25
\[= R5\] | 1M subtracting
1A answer | DH
L1 (2) |
| 5.2.2(f) | P(R10, boy) = \[
\frac{2}{15}, \text{ Numerator}
\]
\[\frac{2}{15}, \text{ Denominator}\] | 1A numerator
1A denominator | L
L2 (2) |
| 5.2.2(g) | P(R30) = \[
\frac{1}{31}, \text{ Numerator}
\]
\[\frac{1}{31}, \text{ Denominator}\] | 1A numerator
1A denominator | L
L2 (2) |

**TOTAL:** 150