



# basic education

Department:  
Basic Education  
**REPUBLIC OF SOUTH AFRICA**

## **NATIONAL SENIOR CERTIFICATE NASIONALE SENIOR SETIFIKAAT**

**GRADE/GRAAD 12**

**MATHEMATICAL LITERACY P2/  
WISKUNDIGE GELETTERDHEID V2**

**NOVEMBER 2018**

**MARKING GUIDELINES/NASIENRIGLYNE**

**MARKS/PUNTE: 150**

| <b>Symbol/Kode</b> | <b>Explanation/Verduideliking</b>                                                                                     |
|--------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>M</b>           | Method/Metode                                                                                                         |
| <b>MA</b>          | Method with accuracy/Metode met akkuraatheid                                                                          |
| <b>CA</b>          | Consistent accuracy/Volgehoue akkuraatheid                                                                            |
| <b>A</b>           | Accuracy/Akkuraatheid                                                                                                 |
| <b>C</b>           | Conversion/Herleiding                                                                                                 |
| <b>S</b>           | Simplification/Vereenvoudiging                                                                                        |
| <b>RT</b>          | Reading from a table/graph/document/diagram/Lees vanaf tabel/grafiek/dokument/diagram                                 |
| <b>SF</b>          | Correct substitution in a formula/Korrekte vervanging in 'n formule                                                   |
| <b>O</b>           | Opinion/Explanation/Opinie/Verduideliking                                                                             |
| <b>P</b>           | Penalty, e.g. for no units, incorrect rounding off, etc./Penalisasie, bv. vir geen eenhede, verkeerde afronding, ens. |
| <b>R/RCA</b>       | Rounding off/Afronding /Rounding with CA/Afronding met CA                                                             |
| <b>NPR</b>         | No penalty for rounding/Geen penalisasie vir afronding nie                                                            |
| <b>AO</b>          | Answer only/Slegs antwoord                                                                                            |
| <b>MCA</b>         | Method with constant accuracy/Metode met volgehoue akkuraatheid                                                       |

**This marking guideline consists of 17 pages.  
Hierdie nasien riglyne bestaan uit 17 bladsye.**

**NOTE:**

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out (cancelled) an attempt to a question and NOT redone the solution, mark the crossed out (cancelled) version.
- Consistent accuracy (CA) applies in ALL aspects of the marking guidelines; however it stops at the second calculation error.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra incorrect item presented.

**LET WEL:**

- As 'n kandidaat 'n vraag TWEE KEER beantwoord, merk slegs die EERSTE poging.
- As 'n kandidaat 'n antwoord van 'n vraag doodtrek (kanselleer) en nie oordoen nie, merk die doodgetrekte (gekanselleerde) poging.
- Volgehoue akkuraatheid (CA) word in ALLE aspekte van die nasienriglynetoegepas, dit hou op by die tweede berekeningsfout.
- Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra verkeerde item.

| QUESTION/VRAAG 1 [38 MARKS/PUNTE] |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                            |         |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Q/V                               | Solution/Oplossing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Explanation/Verduideliking                                                                                                                 | T&L     |
| 1.1.1                             | Discount percentage/Persentasie afslag<br>$= \frac{R6140}{R160\,087,72} \times 100\% = 3,835397... \approx 3,8\%$ <p style="text-align: right;">✓ RT<br/>✓ MA<br/>✓ A</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1RT numerator and denominator<br>1MA multiply correct values with 100 %<br>1A simplification rounded to one decimal place<br><b>AO</b> (3) | F<br>L2 |
| 1.1.2                             | Sub Total/Subtotaal<br>$= R160\,087,72 - R6\,140 + (2 \times R3\,500 + R4\,298,25 + R1\,315,79) = R166\,561,76$ <p style="text-align: right;">✓ M<br/>✓ RT<br/>✓ MA</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1M subtracting discount<br>1RT all values<br>1MA adding accessories, on roads & transaction fee<br>(3)                                     | F<br>L2 |
| 1.1.3                             | Safety reason/as a safety feature - protect against thieves / hijackers /sunlight / door against damages<br><i>Veiligheidsrede/as 'n veiligheidskenmerk - beskerm teen diewe / kapers / sonlig / deur teen beskadiging</i><br><p style="text-align: right;">✓✓ O</p> <p style="text-align: center;"><b>OR/OF</b></p> Beautification of the car / reduce sunlight<br><i>Verfraaiing van die motor/ sonlig te verminder</i><br><p style="text-align: right;">✓✓ O</p> <p style="text-align: center;"><b>OR/OF</b></p> Longer lasting /Langdurend<br><p style="text-align: right;">✓✓ O</p> <p style="text-align: center;"><b>OR/OF</b></p> Convenience / Gemak<br><p style="text-align: right;">✓✓ O</p> <p style="text-align: center;"><b>OR/OF</b></p> For insurance purposes / Vir versekeringsdoeleindes<br><p style="text-align: right;">✓✓ O</p> | 2O reason<br>(2)                                                                                                                           | F<br>L4 |

| Q/V   | Solution/Oplissing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Explanation/Verduideliking                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | T&L     |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 1.1.4 | <p>Interest Year 1/ <i>Jaar1 rente</i><br/> <math>= 6\% \times R\ 1\ 250\ 000 = R\ 75\ 000</math> ✓ MA</p> <p>Interest Year 2/ <i>Jaar2 rente</i><br/> <math>= 6\% \times (R\ 1\ 250\ 000 + R\ 75\ 000) = R\ 79\ 500</math> ✓ CA</p> <p>Interest rate 3 Months /<i>Rentekoers vir 3 maande</i> ✓ C<br/> <math>= 6\% \div 4 = 1,5\%</math> or <math>6\% \times \frac{3}{12} = 1,5\%</math> ✓ M</p> <p>Interest 3 Months/3 <i>Maande rente</i><br/> <math>= 1,5\% \times (R\ 1\ 325\ 000 + R\ 79\ 500) = R\ 21\ 067,50</math> ✓ CA</p> <p>Interest earned/ <i>Rente verdien</i><br/> <math>= R\ 75\ 000 + R\ 79\ 500 + R\ 21\ 067,50 = R\ 175\ 567,50</math> ✓ CA</p> <p>Interest earned is not enough / not sufficient to cover the price of the bakkie. ✓ O<br/> <i>Die rente verdien is nie genoeg om die aankoopprys te dek nie</i></p> <p style="text-align: center;"><b>OR/OF</b></p> <p>27 months = 2 years and 3 months or <math>2\frac{1}{4}</math> years<br/> <i>27 maande = 2 jaar en 3 maande of <math>2\frac{1}{4}</math> jaar</i> ✓ C</p> <p>1st year value/<i>1ste jaar waarde</i><br/> <math>= R\ 1\ 250\ 000 \times 6\% + R\ 1\ 250\ 000 = R\ 1\ 325\ 000</math> ✓ MA ✓ CA</p> <p>2<sup>nd</sup> year value/<i>2de jaar waarde</i><br/> <math>= R\ 1\ 325\ 000 \times 6\% + R\ 1\ 325\ 000 = R\ 1\ 404\ 500</math> ✓ CA</p> <p>Last 3 months/<i>Laaste 3 maande</i><br/> <math>= R\ 1\ 404\ 500 \times \frac{6\%}{4} + R\ 1\ 404\ 500 = R\ 1\ 425\ 567,50</math> ✓ M ✓ CA</p> <p>Difference/<i>Verskil</i><br/> <math>= R\ 1\ 425\ 567,50 - R\ 1\ 250\ 000 = R\ 175\ 567,50</math> ✓ MA ✓ CA</p> <p>It is not enough / not sufficient / <i>Dit is nie genoeg nie.</i> ✓ O</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>Value the interest after 27 months/ <i>Rentewaarde na 27 maande</i><br/> <math>= R\ 1\ 250\ 000 \times 1,06 \times 1,06 \times 1,015 = R\ 1\ 250\ 000</math> ✓✓M ✓✓M ✓✓CA ✓ C</p> <p><math>= R\ 1\ 425\ 567,50 - R\ 1\ 250\ 000</math> ✓MA</p> <p><math>= R\ 175\ 567,50</math> ✓CA</p> <p>Not enough / not sufficient / <i>Nie genoeg nie.</i> ✓O</p> | <p>1MA calculating interest</p> <p>1CA 1<sup>st</sup> year value<br/> 1CA 2<sup>nd</sup> year interest<br/> 1C conversion to years (allocated since there are 3 periods)<br/> 1M dividing % value by 4 (or the interest by 4)</p> <p>1CA last 3 months interest</p> <p>1M adding the interest values<br/> 1CA available amount</p> <p>1O conclusion</p> <p style="text-align: center;"><b>OR /OF</b></p> <p>1C conversion to years</p> <p>1MA calculating interest<br/> 1CA 1<sup>st</sup> year value</p> <p>1CA 2<sup>nd</sup> year value</p> <p>1M dividing % value by 4<br/> 1CA last 3 months value</p> <p>1MA subtracting<br/> 1CA available amount</p> <p>1O conclusion</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>2M multiply the principal with 106 %<br/> 1M 2<sup>nd</sup> year value<br/> 2CA 3months rate and value<br/> 1C conversion to years<br/> 1MA subtracting<br/> 1CA available amount<br/> 1O conclusion (9)</p> | F<br>L3 |

| Q/V   | Solution/Oplossing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Explanation/Verduideliking                                                                                                                                                                                                                                                                                                                                                                                                                                                | T&L     |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 1.1.5 | <p style="text-align: right;">✓ O</p> <p>Mistake: calc. 14% on original price AND an extra 1% on accumulated price<br/> <i>Fout: bereken 14% op die oorspronklike EN tel 'n ekstra 1% by die totaal.</i></p> <p>Correct calculation should be 15% on original price<br/> <i>Korrekte berekening sou wees om 15% by oorspronklike prys te tel</i></p> <p>New selling price / Nuwe verkoopsprys<br/> <math>= R160\,087,72 + 15\% \text{ of } R160\,087,72</math> ✓ MA<br/> <math>= R160\,087,72 + R24\,013,16</math> ✓ MA<br/> <math>= R184\,100,88</math> ✓ CA</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>The dealer added 1% on the VAT inclusive price of ✓ O<br/> <math>R182\,500</math> / Calculating VAT on VAT<br/> <i>Die handelaar het 1% by die BTW insluitende prys van R182 500 getel/ Bereken BTW op BTW</i></p> <p>He should have calculated the 15% directly on the original selling price excluding VAT.<br/> <i>Hy moet die 15% direk op die oorspronklike verkoopsprys sonder BTW tel</i></p> <p>New selling price incl. VAT/ Verkoopsprys BTW ingesluit<br/> <math>\checkmark A</math><br/> <math>= 115\% \times R160\,087,72</math> ✓ MA<br/> <math>= R184\,100,88</math> ✓ CA</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>Mistake is calculating the increased 1% on the VAT inclusive amount. ✓ O<br/> The 1% must be added to the original price<br/> <i>Die fout wat hy gemaak het is om die 1% op die prys wat reeds BTW bevat uit te werk</i></p> <p>Increased price incl. VAT / Verhoogde prys met BTW<br/> <math>\checkmark MA</math><br/> <math>= R182\,500 + R160\,087,72 \times 1\%</math> ✓ MA<br/> <math>= R184\,100,88</math> ✓ CA</p> | <p>1O reason</p> <p>1MA calculating 15%<br/> 1MA adding<br/> 1CA simplification</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>1O stating the error or the solution</p> <p>1A 115%<br/> 1MA multiplying<br/> 1CA simplification</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>1O describing the error</p> <p>1MA calculating 1% on original amount<br/> 1MA adding to VAT incl. amount<br/> 1CA simplification</p> <p style="text-align: right;">(4)</p> | F<br>L4 |

| Q/V          | Solution/Oplossing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Explanation/Verduideliking                                                                                                                                                                                                      | T&L     |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 1.2.1<br>(a) | <p>Surface area of an open box/<i>Buite opp. van oopboks</i> ✓ SF<br/> <math>= \text{Width} \times \text{length} + 2(\text{length} \times \text{height} + \text{width} \times \text{height})</math> ✓ A<br/> <math>= 1,374 \text{ m} \times 1,807 \text{ m} + 2(1,807 \text{ m} \times 0,535 \text{ m} + 1,374 \text{ m} \times 0,535 \text{ m})</math></p> <p><math>= 2,482818 \text{ m}^2 + 2(1,701835 \text{ m}^2)</math> ✓ S</p> <p><math>= 5,886488 \text{ m}^2</math> ✓ CA</p> <p>Surface area of bin (bakkie)/<i>Opp. van bak</i><br/> <math>= 5,886488 \text{ m}^2 + 2\% \times 5,886488 \text{ m}^2</math> ✓ MCA<br/> <math>= 5,886488 \text{ m}^2 + 0,11772976 \text{ m}^2</math><br/> <math>= 6,00421776 \text{ m}^2</math> ✓ CA</p> <p><b>Or/of</b><br/> <math>= 1,02 \times 5,886488 \text{ m}^2</math><br/> <math>= 6,00421776 \text{ m}^2</math></p> <p>Number of litres required/<i>Aantal liter benodig</i><br/> <math>= \frac{6,00421776 \text{ m}^2}{0,25 \text{ m}^2/\ell}</math> ✓ MA</p> <p><math>= 24,01687104 \approx 25 \ell</math> ✓ R</p> | <p>1SF Substitution<br/>1A correct values used</p> <p>1S simplification<br/>1CA total area</p> <p>1MCA increasing by 2%<br/>1CA simplification</p> <p>1MA dividing with spread rate<br/>1R rounding up litres</p> <p>(8)</p>    | M<br>L3 |
| 1.2.1<br>(b) | <p>Cost = Number of 5 litre <math>\times</math> 2 coats <math>\times</math> Price per 5 litre<br/> <i>Koste = Aantal 5 liters <math>\times</math> 2 lae <math>\times</math> prys per 5ℓ</i><br/> <math>= \frac{25}{5} \times 2 \times \text{R}549,00</math> ✓ CA<br/> <math>= \text{R}5\,490,00</math> ✓ CA</p> <p><b>OR/OF</b></p> <p>For two coats of paint <math>= 25 \times 2 = 50</math> litres ✓ MCA</p> <p>Number of 5 litre tins <math>= \frac{50}{5} = 10</math> ✓ CA</p> <p>Cost <math>= 10 \times \text{R}5\,49 = \text{R}5\,490</math> ✓ CA</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>CA from 1.2.1(a)</p> <p>1CA number of 5 litres<br/>1MCA multiply 2 by price<br/>1CA cost for 10 litres</p> <p><b>OR/OF</b></p> <p>1MCA multiply by 2<br/>1CA number of 5 litres<br/>1CA cost</p> <p><b>AO</b></p> <p>(3)</p> | F<br>L2 |

| Q/V   | Solution/Oplossing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Explanation/Verduideliking                                                                                                                                                                                                                | T&L     |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 1.2.2 | <p>To protect the cargo bin's surface from scratching/rusting/<br/>being damaged. ✓✓ O<br/><i>Om die vragbak te beskerm teen krappe/roes/beskadiging</i></p> <p><b>OR</b></p> <p>Extend the life span of a bakkie's loading box ✓✓ O<br/><i>Om die vragbak se leeftyd te verleng</i></p> <p><b>OR</b></p> <p>To stop goods from slipping/protection of goods/<i>Om te keer dat goedere gly/beskadig word.</i> ✓✓ O</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>20 reason</p> <p>(2)</p>                                                                                                                                                                                                               | M<br>L4 |
| 1.3   | <p>Time: Apply = 20 min × 2 coats = 40 min<br/>Re-coat = 4 hours = 240 min ✓ C<br/>Drying time = 2 hours = 120 min<br/><i>Tyd: Aanwend = 20 min × 2 lae = 40 min</i><br/><i>Wagtyd = 4 uur = 240 min</i><br/><i>Droogtyd = 2 uur = 120 min</i></p> <p>Total time needed/<i>totale tyd benodig</i><br/>= 40 min + 240 min + 120 min = 400 min = 6 hours 40 min ✓ M ✓ CA</p> <p>Completion/<i>Voltooing</i><br/>= 8 h 15 + 6 h 40 = 14 h 55<br/>∴ Time/<i>Tyd</i> 14:55 ✓ CA</p> <p><b>OR/OF</b></p> <p>Apply 1<sup>st</sup> coat (20 min) 8:15 – 8:35 ✓ M<br/><i>Wend 1<sup>ste</sup> laag aan (20 min) 8:15 – 8:35</i></p> <p>Waiting time (4 hours) 8:35 – 12:35 ✓ MCA<br/><i>Wagtyd (4 uur) 8:35 – 12:35</i></p> <p>Apply 2<sup>nd</sup> coat (20 min) 12:35 – 12:55 ✓ MCA<br/><i>Wend 2<sup>de</sup> laag aan (20 min) 12:35 – 12:55</i></p> <p>Drying time (2 hours) 12:55 – 14:55<br/><i>Droogtyd (2 uur) 12:55 – 14:55</i></p> <p>∴ Time 14:55 <b>or</b> 2:55 p.m. <b>or</b> five to three in the afternoon ✓ CA<br/>∴ <i>Tyd 14:55 of 2:55 nm. of vyf minute voor drie die namiddag</i></p> | <p>1C converting</p> <p>1M adding times<br/>1CA time needed</p> <p>1CA time</p> <p><b>OR/OF</b></p> <p>1M adding times</p> <p>1MCA adding correct hours</p> <p>1MCA adding correct times</p> <p>1 CA time</p> <p><b>AO</b></p> <p>(4)</p> | M<br>L2 |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                           | [38]    |

| QUESTION/VRAAG 2 [38MARKS/PUNTE] |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                 |         |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------|
| Q/V                              | Solution/Oplissing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Explanation/Verduideliking                                                                                                      | T&L     |
| 2.1.1<br>(a)                     | $A = \frac{216\,329 - 227\,665}{227\,665} \times 100\%$ <p>✓ MA<br/>✓ A</p> <p>= -4,979% ✓ A</p> <p>≈ -5% ✓ RCA</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>1MA subtracting correct values</p> <p>1A denominator</p> <p>1A negative simplification</p> <p>1RCA value of A</p> <p>(4)</p> | D<br>L2 |
| 2.1.1<br>(b)                     | <p>-12 ; -5 ; -2 ; -1 ; 0 ; 2 ; 5 ; 10 ; 13 ; 13 ; 16 ; 18 ; 19 ; 40</p> <p>✓ MCA</p> <p>Median/Mediaan = <math>\frac{5\% + 10\%}{2}</math> ✓ M</p> <p>= 7,5% ✓ CA</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>CA from 2.1.1(a)</p> <p>1MCA arranging</p> <p>1M median concept</p> <p>1CA median</p> <p>(3)</p>                             | D<br>L3 |
| 2.1.2                            | <p>✓ A</p> <p>As the year increased the value of the imports of make-up and skincare increased. ✓ A</p> <p><i>Soos die jare aangaan, het die waarde van die invoere van grimering en versorg vermeerder.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>1A year increased</p> <p>1A value increased</p> <p>(2)</p>                                                                   | D<br>L4 |
| 2.1.3                            | <p>✓ A</p> <p><b>Fr:</b> import share increased from 2013 to 2014, but decreased in 2015. ✓ O</p> <p><b>RW:</b> invoer vermeerder in 2014 vanaf 2013, maar verminder in 2015</p> <p>✓ A</p> <p><b>Pf:</b> import share decreased from 2013 to 2014, but increased in 2015. ✓ O</p> <p><b>Pf:</b> invoer verminder in 2014 vanaf 2013, maar vermeerder in 2015.</p>                                                                                                                                                                                                                                                                                                                                   | <p>1A product</p> <p>1O reasoning</p> <p>1A product</p> <p>1O reasoning</p> <p>(4)</p>                                          | D<br>L4 |
| 2.1.4                            | <p>✓ O</p> <p>No. Too many sectors and one pie chart cannot be used as different years need to be shown. ✓ O</p> <p><i>Nee. Te veel sektore om op een sirkeldiagram te toon omdat verskillende jare getoon moet word.</i></p> <p><b>OR/OF</b></p> <p>✓ O</p> <p>No. Too many sectors/columns; some are too small /negligible. ✓ O</p> <p><i>Nee. Te veel sektore/kolomme; sommige is te klein.</i></p> <p><b>OR/OF</b></p> <p>✓ O</p> <p>No. Negative values will be difficult to indicate. ✓ O</p> <p><i>Nee. Negatiewe waardes maak dit moeilik.</i></p> <p>✓ O</p> <p><b>OR/OF</b> ✓ O</p> <p>No. Percentages do not add up to 100%.</p> <p><i>Nee. Persentasies tel nie op tot 100% nie.</i></p> | <p>1O No</p> <p>1O reason</p> <p>(2)</p>                                                                                        | D<br>L4 |

| Q/V   | Solution/Oplissing                                                                                                                                                                                                                                                                 | Explanation/Verduideliking | T&L     |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------|
| 2.1.5 | <p style="text-align: center;"><b>Percentage imports and average growth of Personal Care and Cosmetics to Australia</b></p> <p style="text-align: center;">Products</p> <p>1A first point<br/>1A last point<br/>3 × 1A Every other two points correctly plotted<br/>1A Joining</p> |                            | D<br>L3 |

(6)

| Q/V   | Solution/Oplossing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Explanation/Verduideliking                                                                                                                                                                                                                                                                                                                                                                       | T&L     |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 2.2.1 | Total cost = Basefare + $10 \times$ cost per mile<br><i>Totale koste = Basisfooi + <math>10 \times</math> koste per myl</i><br>$= \$20,00 + 10 \times \$5,00$ per mile<br>$= \$70,00$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2RT using correct values<br>1CA value of B if only 1 value is incorrect<br>(3)                                                                                                                                                                                                                                                                                                                   | F<br>L2 |
| 2.2.2 | Maximum distance (in miles)/Maksimum afstand(in myl)<br>$= \frac{\$4,65}{\$0,90}$<br>$= 5,166\dots$<br>$\approx 5$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1RT reading correct values from table<br>1M dividing<br>1CA simplification<br>1R rounding<br>(4)                                                                                                                                                                                                                                                                                                 | F<br>L3 |
| 2.2.3 | 1 hour 9 minutes = 69 minutes<br><i>1 uur 9 minute = 69 minute</i><br>Post trip cost/ <i>Na-ritkoste</i><br>$= 69 \text{ min} \times \$0,45 / \text{min} + 29,73 \text{ mi} \times \$3,55 / \text{mi}$<br>$= \$31,05 + \$105,5415$<br>$= \$136,59$<br>Upfront cost/ <i>Vooruit koste</i><br>$= \$8 + 29,73 \text{ mi} \times \$3,55 / \text{mi}$<br>$= \$113,54$<br>Difference = $\$136,59 - \$113,54 = \$23,05$<br>The statement is correct/ <i>Die stelling is korrek.</i><br><b>OR/OF</b><br>Difference = Post trip cost – Upfront cost<br><i>Verskil = Na-ritkoste – Vooruit koste</i><br>$= 69 \text{ min} \times \$0,45 / \text{min} + 29,73 \text{ mi} \times \$3,55 / \text{mi} - (\$8 + 29,73 \text{ mi} \times \$3,55 / \text{mi})$<br>$= 69 \text{ min} \times \$0,45 / \text{min} - \$8$<br>$= \$23,05$<br>The statement is correct/ <i>Die stelling is korrek.</i> | 1 C converting to minutes<br>1SF substituting correct values<br>1S simplification<br>1CA post trip cost<br>1SF substituting correct values<br>1CA upfront trip cost<br>1S difference<br>1O conclusion<br><b>OR/OF</b><br>1C time to minutes<br>1SF values into 1 <sup>st</sup> formula<br>1SF values into 2 <sup>nd</sup> formula<br>3S simplification<br>1CA difference<br>1O conclusion<br>(8) | F<br>L4 |

| Q/V   | Solution/Oplissing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Explanation/Verduideliking     | T&L             |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-----------------|
| 2.2.4 | <p>✓✓ O<br/>To cover cost for idle/wasted time when a vehicle could have been used to assist someone when you cancel the booking.<br/><i>Om kostes te dek vir verlore tyd terwyl die voertuig gebruik kon word om iemand anders te help wanneer jy die bespreking kanselleer.</i></p> <p><b>OR/OF</b></p> <p>Penalty for booking made if one does not finally use the vehicle (time wasting). ✓✓ O<br/><i>Boete vir'n bespreking wat gemaak is as jy aan die einde nie die voertuig gebruik nie (vermorsing van tyd)</i></p> <p><b>OR/OF</b></p> <p>Prevent hoax calls/ <i>Verhoed fopoproepe</i> ✓✓ O</p> <p><b>OR/OF</b></p> <p>To cover petrol costs and wear and tear of the vehicle ✓✓ O<br/><i>Om petrol- en slytasiekoste van die voertuig te dek.</i></p> <p><b>OR/OF</b></p> <p>For the company to make a profit / avoid losses ✓✓ O<br/><i>Vir die maatskappy om 'n wins te maak/ verhoed verliese</i></p> | <p>20 reasoning</p> <p>(2)</p> | <p>F<br/>L4</p> |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | [38]                           |                 |

| QUESTION/VRAAG 3 [39MARKS/PUNTE] |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                |          |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------|
| Q/V                              | Solution/Oplossing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Explanation/Verduideliking                                                                                     | T&L      |
| 3.1.1                            | $P_{(\text{Coke \& water})} = \left(\frac{4}{9}\right)^{\checkmark A}$ $= 0,44 \quad \checkmark CA$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1A numerator<br>1A denominator<br>1CA decimal number<br><b>NPR</b><br>(3)                                      | P<br>L2  |
| 3.1.2                            | South East <b>OR</b> East of South <b>OR</b> SE. $\checkmark\checkmark A$<br><i>Suidoos <b>OF</b> Oos van Suid <b>OF</b> SO</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2A direction<br>(2)                                                                                            | MP<br>L2 |
| 3.1.3<br>(a)                     | The start is at 1 400 m running to 1 565 m at the 5 km mark and then 1 708 m at the 10 km mark. $\checkmark A$<br><i>Die begin is by 1 400m, by die 5km merk is dit 1 565 m en dan 1 708 m by die 10km merk.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1A for height 1 400 m<br>1 A for height 1 708 m<br>[Accept increase in height above sea level/altitude]<br>(2) | MP<br>L4 |
| 3.1.3<br>(b)                     | Lowest point : highest point/Laagste punt: hoogste punt<br>$\checkmark RT \quad \checkmark RT$<br>$= 1\,166\text{ m} : 1\,708\text{ m}$<br>$= 1 : 1,464837... \quad \checkmark CA$<br>$\approx 1 : 1,46 \text{ or } 1 : 1,5$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2RT correct values<br>1CA ratio<br><b>NPR</b><br>(3)                                                           | MP<br>L2 |
| 3.1.4                            | To take struggling runners out of the race because they are not coping. $\checkmark\checkmark O$<br><i>Om hardlopers wat sukkel uit die wedren te haal omdat hulle nie die mas opkom nie.</i><br><b>OR</b><br>Security reasons (guards and health personnel deployed in strategic sections along the race course during specific times). $\checkmark\checkmark O$<br><i>Veiligheidsredes(wagte en noodhulppersoneel word ontplooi in sekere gedeeltes van die wedren vir spesifieke tye)</i><br><b>OR/OF</b><br>For runners to know whether they have a realistic chance of finishing race within the time allowed for the race. $\checkmark\checkmark O$<br><i>Sodat deelnemers weet of hulle 'n realistiese kans het om die wedren binne die toegelate tyd te voltooi.</i><br><b>OR/ OF</b><br>Also helps organisers to plan appropriately for other scheduled events. $\checkmark\checkmark O$<br><i>Dit help ook die organiseerders om te beplan vir ander geskeduleerder items soos medalje- en perskonferensies.</i><br><b>OR/ OF</b><br>If the road was closed it needs to be opened. $\checkmark\checkmark O$<br><i>Indien die pad gesluit was, moet weer oopgestel word.</i> | 2O understanding/reason<br>(2)                                                                                 | MP<br>L4 |

| Q/V   | Solution/Opplossing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Explanation/Verduideliking                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | T&L      |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 3.1.5 | <p>The average speed required to beat the cut-off 2:<br/> <i>Die gemiddelde spoed nodig om afsny 2 te haal:</i></p> $\text{Speed/Spoed(marathon)} = \frac{31,5\text{km}}{5\text{h}15\text{min}} \quad \checkmark\text{RT}$ $= 6 \text{ km/h} \quad \checkmark\text{M}$ $= 6 \text{ km/h} \quad \checkmark\text{CA}$<br>$\text{Speed/Spoed}(\frac{1}{2} \text{ marathon}) = \frac{16,5\text{km}}{5\text{h}} \quad \checkmark\text{MA}$ $= 3,3 \text{ km/h} \quad \checkmark\text{CA}$ <p><math>\checkmark\text{O}</math><br/> The claim is correct (<math>6 - 3,3 = 2,7 \text{ km/h}</math>).<br/> <i>Die bewering is korrek.</i></p> <p style="text-align: center;"><b>OR/OF</b></p> $\text{Speed/Spoed}(\frac{1}{2} \text{ marathon}) = 16,5 \text{ km} \div 5\text{h} = 3,3 \text{ km/h} \quad \checkmark\text{M}$ $\text{Increased speed for full marathon} = (3,3 + 2,7) \text{ km/h} = 6\text{km/h} \quad \checkmark\text{CA}$ $\text{Distance} = 6 \text{ km/h} \times 5,25\text{h} = 31,5 \text{ km} \quad \checkmark\text{MA}$ <p>Correct/Korrek <math>\checkmark\text{O}</math></p> <p style="text-align: center;"><b>OR/OF</b></p> $\text{Speed/Spoed}(\frac{1}{2} \text{ marathon}) = 16,5 \text{ km} \div 5\text{h} = 3,3 \text{ km/h} \quad \checkmark\text{M}$ $\text{Increased speed for full marathon} = (3,3 + 2,7) \text{ km/h} = 6\text{km/h} \quad \checkmark\text{CA}$ $\text{Time to cut-off} = \frac{31,5\text{km}}{6\text{km/h}} = 5,25 \text{ h} \quad \checkmark\text{MA}$ <p>Correct/Korrek <math>\checkmark\text{O}</math></p> | <p>1RT correct values (dist. &amp; time)<br/> 1M calculating speed / change the subject<br/> 1CA simplification</p><br><p>1MA calculating speed</p> <p>1CA 2nd speed</p> <p>1O conclusion</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>1M calculating speed / change the subject<br/> 1CA simplification<br/> 1MA calculating incr. speed<br/> 1MA calculating distance<br/> 1CA distance<br/> 1O conclusion</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>1M calculating speed / change the subject<br/> 1CA simplification<br/> 1MA calculating incr. speed<br/> 1MA calculating time<br/> 1CA time<br/> 1O conclusion</p> <p style="text-align: right;">(6)</p> | MP<br>L4 |
| 3.2.1 | $20 \ell = 20 \times 1\,000 \text{ cm}^3 \quad \checkmark\text{C}$<br><p>Inner diameter / <i>Binneste middellyn</i> = <math>31,2 \text{ cm} - 2 \times 0,2 \text{ cm}</math><br/> = <math>30,8 \text{ cm} \quad \checkmark\text{A}</math></p> $V = 3,142 \times (30,8\text{cm} \div 2)^2 \times \text{height/hoogte} \quad \checkmark\text{MCA}$ $20\,000 \text{ cm}^3 = 3,142 \times \left(\frac{30,8}{2}\text{cm}\right)^2 \times \text{H} \quad \checkmark\text{SF}$ $\text{H} = \frac{20\,000 \text{ cm}^3}{3,142 \times 237,16\text{cm}^2} \quad \checkmark\text{M}$ $= \frac{20\,000}{745,15672} \text{ cm} \quad \checkmark\text{S}$ $= 26,84 \text{ cm} \quad \checkmark\text{CA}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>1C conversion</p><br><p>1A calculating inner diameter</p><br><p>1MCA radius</p><br><p>1SF correct values</p><br><p>1M changing the subject</p><br><p>1S simplification</p><br><p>1CA height</p> <p style="text-align: right;">(7)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                              | M<br>L3  |

| Q/V          | Solution/Oplossing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Explanation/Verduideliking                                                                                                                                                                                                                                                                           | T&L      |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 3.2.2<br>(a) | <p>Area of base of 1 bucket/<i>Oppervlakte van 1 emmer basis</i></p> $= 3,142 \times (15,6 \text{ cm})^2 \quad \checkmark \text{ A}$ $= 764,63712 \text{ cm}^2 \quad \checkmark \text{ CA}$ <p>Area of base of 11 buckets/<i>Oppervlakte van 11 emmers</i></p> $= 11 \times 764,63712 \text{ cm}^2 = 8\,411,00832 \text{ cm}^2 \quad \checkmark \text{ CA}$ <p>Area of base of pallet/<i>Oppervlakte van palletbasis</i></p> $= 100 \text{ cm} \times 120 \text{ cm} = 12\,000 \text{ cm}^2 \quad \checkmark \text{ SF} \quad \checkmark \text{ A}$ <p>Difference/<i>Verskil</i> = <math>12\,000 \text{ cm}^2 - 8\,411,00832 \text{ cm}^2</math></p> $= 3\,588,99168 \text{ cm}^2 \quad \checkmark \text{ CA}$                                                                                                                              | <p>1A radius</p> <p>1CA simplification</p> <p>1CA multiply by 11</p> <p>1SF correct values<br/>1A rectangular area</p> <p>1CA area unused<br/><b>NPR</b></p> <p>(6)</p>                                                                                                                              | M<br>L3  |
| 3.2.2<br>(b) | $120 \text{ cm} = 31,2 \times 3 + C \quad \checkmark \text{ A}$ $C = 120 \text{ cm} - 31,2 \text{ cm} \times 3 \quad \checkmark \text{ M}$ $= 26,4 \text{ cm} \quad \checkmark \text{ CA}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>1A 120 cm</p> <p>1M multiplying and subtracting<br/>1CA finding C</p> <p>(3)</p>                                                                                                                                                                                                                  | M<br>L4  |
| 3.2.3        | <p>Length occupied by 4 buckets/<i>Lengte van 4 emmerbasisse</i></p> $= 4 \times 31,2 \text{ cm} = 124,8 \text{ cm} \quad \checkmark \text{ MA} \quad \checkmark \text{ A}$ <p>Length should be increased by/<i>Lengte moet vermeerder met</i></p> $= \frac{124,8 - 120}{120} \times 100\% \quad \checkmark \text{ CA} \quad \checkmark \text{ M}$ $= 4\% \quad \checkmark \text{ CA}$ <p style="text-align: center;"><b>OR/OF</b></p> <p>Length occupied by 4 buckets/<i>Lengte van 4 emmerbasisse</i></p> $= 4 \times 31,2 \text{ cm} = 124,8 \text{ cm} \quad \checkmark \text{ MA} \quad \checkmark \text{ A}$ <p>120 cm is 100%</p> $124,8 \text{ cm is } \frac{124,8}{120} \times 100\% = 104\% \quad \checkmark \text{ M} \quad \checkmark \text{ CA}$ <p><math>\therefore</math> 4% increase <math>\checkmark \text{ CA}</math></p> | <p>1MA multiplying<br/>1A correct length</p> <p>1CA substituting<br/>1M % change</p> <p>1CA simplification</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>1MA multiplying<br/>1A correct length</p> <p>1M multiply with 100%<br/>1CA simplification</p> <p>1CA simplification</p> <p>(5)</p> | MP<br>L3 |
|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>[39]</b>                                                                                                                                                                                                                                                                                          |          |

| QUESTION/VRAAG 4 [35 MARKS/PUNTE] |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Q/V                               | Solution/Oplossing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Explanation/Verduideliking                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | T&L     |
| 4.1.1                             | <p>Total for these capsules/<i>totaal vir hierdie kapsules</i></p> $= 23 \times \overset{\checkmark}{\text{MA}} \text{ £}27 + 5 \times \overset{\checkmark}{\text{MA}} \text{ £}27 \times 90\% + 8 \times \overset{\checkmark}{\text{MA}} \text{ £}22 + 7 \times \overset{\checkmark}{\text{MA}} \text{ £}25,50$ $= \text{£}621 + \text{£}121,50 + \text{£}176 + \text{£}178,50$ $= \text{£}1\,097 \quad \checkmark \text{ CA}$ <p>Rand value/<i>waarde</i> = <math>\text{£}1\,097 \times \text{R}16,58/\text{£}</math></p> $= \text{R}18\,188,26 \quad \checkmark \text{ C}$ <p><math>\therefore</math> the statement is not correct/<i>die opmerking is nie korrek nie</i> <math>\checkmark \text{ O}</math></p> <p style="text-align: center;"><b>OR/OF</b></p> <p>Without discount for 5/<i>sonder afslag vir 5</i></p> $= 28 \times \overset{\checkmark}{\text{MA}} \text{ £}27 + 8 \times \overset{\checkmark}{\text{MA}} \text{ £}22 + 7 \times \overset{\checkmark}{\text{MA}} \text{ £}25,50 \quad \checkmark \text{ MA}$ $= \text{£}756 + \text{£}176 + \text{£}178,50$ $= \text{£}1\,110,50 \quad \checkmark \text{ CA}$ <p>Discount for 5/<i>Afslag vir 5</i> = <math>5 \times \text{£}27 \times 10\%</math></p> $= \text{£}13,50 \quad \checkmark \text{ A}$ <p>Total ticket price/<i>Totale kaartjie prys</i></p> $= \text{£}1\,110,50 - \text{£}13,50 = \text{£}1\,097 \quad \checkmark \text{ CA}$ <p>Rand value/<i>waarde</i></p> $= \text{£}1\,097 \times \text{R}16,58/\text{£} = \text{R}18\,188,26 \quad \checkmark \text{ C}$ <p>NOT correct/<i>NIE korrek NIE</i> <math>\checkmark \text{ O}</math></p> <p style="text-align: center;"><b>OR/OF</b></p> <p>Cost of Capsule 24 + Cost of Capsule 30 – Discount for 5 Adults</p> $(18 \times \overset{\checkmark}{\text{MA}} \text{ £}27 + 7 \times \overset{\checkmark}{\text{MA}} \text{ £}22 + 2 \times \overset{\checkmark}{\text{MA}} \text{ £}25,50) + \overset{\checkmark}{\text{M}}$ $(10 \times \overset{\checkmark}{\text{MA}} \text{ £}27 + 1 \times \overset{\checkmark}{\text{MA}} \text{ £}22 + 5 \times \overset{\checkmark}{\text{MA}} \text{ £}25,50) - 5 \times \overset{\checkmark}{\text{A}} \text{ £}27 \times 10\% =$ $\text{£}691 + \text{£}419,5 - \overset{\checkmark}{\text{CA}} \text{ £}13,5 = \text{£}1\,097 \quad \checkmark \text{ CA}$ <p>Rand value/<i>waarde</i></p> $= \text{£}1\,097 \times \text{R}16,58/\text{£} = \text{R}18\,188,26 \quad \checkmark \text{ C}$ <p>NOT correct/<i>NIE korrek NIE</i> <math>\checkmark \text{ O}</math></p> | <p>3MA multiply tickets by price</p> <p>2MA discount for 5</p> <p>1CA total for 2 capsules</p> <p>1C pounds to rand</p> <p>1O conclusion</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>3MA multiply tickets by price</p> <p>1CA simplification</p> <p>1A discount</p> <p>1CA total</p> <p>1C pounds to rand</p> <p>1O conclusion</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>2MA multiply tickets by price</p> <p>1M adding costs</p> <p>1A discount</p> <p>1CA simplification</p> <p>1CA total</p> <p>1C pounds to rand</p> <p>1O conclusion</p> | F<br>L4 |

| Q/V          | Solution/Oplossing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Explanation/Verduideliking                                                                                                                                                                                                                                                                                 | T&L     |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|              | <p style="text-align: center;"><b>OR/OF</b></p> <p>Ticket price in rand:<br/>           Adult: <math>27 \times 16,58 = R447,66</math><br/>           Children: <math>22 \times 16,58 = R364,76</math><br/>           Senior citizens: <math>25,5 \times 16,58 = R422,79</math></p> <p>Discount adult = <math>R44,77</math><br/>           Online ticket price = <math>R402,89</math></p> <p>Total price = <math>(23 \times R447,66) + (5 \times R402,89) +</math><br/> <math>(8 \times R364,76) + (7 \times R422,79)</math><br/> <math>= R18\,188,24</math></p> <p>NOT correct/NIE korrek NIE</p> | <p style="text-align: center;"><b>OR/OF</b></p> <p>1C conversion</p> <p>1A discount</p> <p>4×1MA multiply tickets by price</p> <p>1CA total</p> <p>1O conclusion</p> <p style="text-align: right;">(8)</p>                                                                                                 |         |
| 4.1.2<br>(a) | <p>Circumference of the wheel/Omtrek van die wiel<br/> <math>= 2 \times \pi \times \text{radius}</math><br/> <math>= 2 \times 3,142 \times 197</math><br/> <math>= 1\,237,948 \text{ feet/voet}</math></p>                                                                                                                                                                                                                                                                                                                                                                                        | <p>1SF correct values</p> <p>1CA circumference<br/> <b>NPR</b></p> <p style="text-align: right;">(2)</p>                                                                                                                                                                                                   | M<br>L2 |
| 4.1.2<br>(b) | <p>Distance/Afstand = <math>\frac{1\,237,948}{32} \text{ feet/voet}</math><br/> <math>= 38,685875 \text{ feet/voet}</math><br/> <math>= \frac{38,685875}{3,28} \text{ m}</math><br/> <math>= 11,794... \text{ m} \approx 11 \text{ m}</math></p> <p style="text-align: center;"><b>OR/OF</b></p> <p>Circumference in metre/Omtrek in meter<br/> <math>= \frac{1\,237,948}{3,28} = 377,4231707 \text{ m}</math><br/>           Distance apart/afstand tussen kapsules<br/> <math>= \frac{377,4231707}{32}</math><br/> <math>= 11,794... \text{ m} \approx 11 \text{ m}</math></p>                  | <p>CA from 4.1.2(a)<br/>           1MA dividing by 32</p> <p>1C conversion</p> <p>1R rounded distance<br/>           [also accept 12m]</p> <p style="text-align: center;"><b>OR/OF</b></p> <p>1C conversion</p> <p>1MA dividing by 32</p> <p>1R rounded distance</p> <p style="text-align: right;">(3)</p> | M<br>L2 |
| 4.2.1        | <p>Difference/Verskil = <math>624\,000 - 312\,600</math><br/> <math>= 311\,400</math> or/of 311,4 thousand/duisend</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>1RT correct values<br/>           1M subtraction<br/>           1CA difference in <b>thousands</b></p> <p style="text-align: right;">(3)</p>                                                                                                                                                            | D<br>L2 |

| Q/V   | Solution/Oplossing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Explanation/Verduideliking                                                                                                                                                                                                                                           | T&L     |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 4.2.2 | $P_{(\text{Midlands West \& East})} = \frac{609\,600 + 295\,000}{7\,146\,600} \times 100\% \quad \checkmark \text{RT}$ $= \frac{904\,600}{7\,146\,600} \times 100\% \quad \checkmark \text{S} \quad \checkmark \text{M}$ $= 12,65776 \dots \%$ $\approx 12,66\% \quad \checkmark \text{CA}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1RT numerator & denominator<br><br>1S simplification<br>1M multiply by 100%<br><br>1CA probability<br><b>NPR</b><br><b>AO</b><br>(4)                                                                                                                                 | P<br>L3 |
| 4.2.3 | $\text{Ratio/Verhouding} = \frac{1\,157,0}{378,3} \quad \checkmark \text{RT}$ $= 3,0584 \quad \checkmark \text{CA}$ <p>∴ The statement is valid/Die bewering is geldig. <math>\checkmark \text{O}</math></p> <p style="text-align: center;"><b>OR/OF</b></p> <p>Number of business visitors = 378,3 thousand<br/>           And holiday visitors = 1 157 thousand</p> $378,3 \text{ thousand} \times 3 = 1\,134,9 \text{ thousand} \quad \checkmark \text{RT} \quad \checkmark \text{CA}$ $378,3 \text{ duisend} \times 3 = 1\,134,9 \text{ duisend}$ <p>∴ The statement is valid/Die bewering is geldig. <math>\checkmark \text{O}</math></p> <p style="text-align: center;"><b>OR/OF</b></p> $1\,157\,000 \div 3 \approx 385\,667 \quad \checkmark \text{RT} \quad \checkmark \text{CA}$ <p>∴ The statement is valid/Die bewering is geldig. <math>\checkmark \text{O}</math></p> | 1RT values<br><br>1CA simplification<br><br>1O conclusion<br><br><b>OR/OF</b><br><br>1RT values<br>1CA simplification<br><br>1O conclusion<br><br><b>OR/OF</b><br>1RT values<br>1CA simplification<br><br>1O conclusion<br>[No penalty for omitting thousand]<br>(3) | D<br>L4 |
| 4.2.4 | $175,1 \quad 324,8 \quad \mathbf{405,7} \quad 480,5 \quad 562,7 \quad \mathbf{600,8} \quad \checkmark \text{MA}$ $762,6 \quad 806,8 \quad \mathbf{856,2} \quad 1594,0 \quad 3\,556,0$ $Q_1/K_1 = 405,7 \quad \checkmark \text{A} \quad Q_3/K_3 = 856,2 \quad \checkmark \text{A}$ $\text{IQR/IKO} = (856,2 - 405,7) \times 1\,000 \quad \checkmark \text{M}$ $= 450,5 \times 1000$ $= 450\,500 \quad \checkmark \text{CA}$                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1MA order, ascending or descending<br><br>2A $Q_1$ and $Q_3$<br><br>1M subtracting quartiles<br><br>1CA IQR value<br>[No penalty for omitting thousand]<br>(5)                                                                                                       | D<br>L3 |

| Q/V              | Solution/Oplossing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Explanation/Verduideliking                                                                                                                                                                                                                                       | T&L     |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 4.2.5            | <p>Tourism boosts the economy (selling and buying) <sup>✓✓ O</sup> of the country.<br/> <i>Toerisme versterk die ekonomie (koop en verkoop) van die land.</i></p> <p><b>OR/OF</b></p> <p>Tourism assists people to know the places they want to visit and be prepared/ exposes the goods and services of a country <sup>✓✓ O</sup><br/> <i>Toerisme help mense om die plekke wat hulle besoek te ken en om voor te berei/land se goedere en dienste kry blootstelling</i></p> <p><b>OR/OF</b></p> <p>Brings income to the country and more tourists stimulate the economy. / GDP grows. <sup>✓✓ O</sup><br/> <i>Dit bring ekstra inkomste na die land en meer toeriste stimuleer die ekonomie./ BBP groei.</i></p> <p><b>OR/OF</b></p> <p>Help to promote Social and Cultural interaction. <sup>✓✓ O</sup><br/> <i>Bevorder sosiale en kulturele interaksie.</i></p>                                                                                                                                                                                        | <p>2O reason financial</p> <p>2O environmental reason</p> <p>2O economic reason</p> <p>2O humanitarian reason (2)</p>                                                                                                                                            | D<br>L4 |
| 4.2.6            | <p><sup>✓ M</sup><br/> Total = <math>162\,666,5455 \times 11 \approx 1\,789\,332</math> <sup>✓ R</sup></p> <p>Known data total = <math>471\,928 + 170\,113 + 119\,639 + 107\,230 + 76\,496 + 120\,343 + 179\,450 + 226\,003 + 172\,282</math><br/> <math>= 1\,643\,484</math> <sup>✓ A</sup></p> <p>Wales = NE + 30 440<br/> NE + NE + 30 440 + 1 643 484 = 1 789 332 <sup>✓ MA</sup><br/> 2NE = 115 408<br/> NE = 57 704 <sup>✓ CA</sup></p> <p><b>OR/OF</b></p> <p>Mean value/Gemiddelde waarde<br/> <math>= \frac{\text{North East/Noordoos} + \text{Wales/Wallis} + \text{other / ander} \sup{✓ M}}{11}</math></p> <p><sup>✓ MA</sup><br/> <math>\frac{\text{NE} + \text{NE} + 30\,440 + 1\,643\,484}{11} = 162\,666,5455</math></p> <p><math>2\text{NE} + 1\,673\,924 = 1\,789\,332,001</math> <sup>✓ S</sup></p> <p><math>\frac{2\text{NE}}{2} = \frac{115\,408,001}{2}</math> <sup>✓ M</sup></p> <p>NE = 57 704,00025</p> <p>Direct employment of North East = 57 704 <sup>✓ R</sup><br/> <i>Direkte werkseleenthede van Noordooste = 57 704</i></p> | <p>1M multiplying with 11<br/> 1R rounding</p> <p>1A known total</p> <p>1MA two unknowns<br/> 1CA simplification</p> <p><b>OR/OF</b></p> <p>1M concept of mean</p> <p>1MA two unknowns<br/> 1S simplification</p> <p>1M dividing by 2</p> <p>1R rounding (5)</p> | D<br>L4 |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | [35]                                                                                                                                                                                                                                                             |         |
| TOTAL/TOTAAL:150 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                  |         |