



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE/ NASIONALE SENIOR SERTIFIKAAT

GRADE 12

**MATHEMATICAL LITERACY P2/
WISKUNDIGE GELETTERDHEID V2**

NOVEMBER 2022

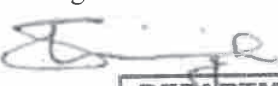
MARKING GUIDELINES/NASIENRIGLYNE

MARKS/PUNTE: 150

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

These marking guidelines consist of 21 pages, an analysis grid and notes.

Hierdie nasienriglyne bestaan uit 21 bladsye, 'n analiserooster en notas.

APPROVED ON 16 November 2022	External Moderators		Internal Moderator
	R I Singh 	E Cronje 	L R deWaal 

**DEPARTMENT OF BASIC
EDUCATION**

PRIVATE BAG X895, PRETORIA 0001

2022 -11- 16

**APPROVED MARKING GUIDELINE
PUBLIC EXAMINATION**

Copyright reserved/
Kopiereg voorbehou

Please turn over/
Blaai om asseblief

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.
- NOTE: consistent accuracy (CA) does not apply in cases of a breakdown.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra item presented.
- As a general marking principle, if a candidate has incurred one mistake and there is evidence of sound mathematics thereafter, then that candidate should lose one mark only.
- Rounding is an independent mark.
- In opinion type questions marks will only be awarded if relevant calculations are shown

LET WEL:

- As 'n kandidaat 'n vraag TWEE KEER beantwoord, sien slegs die EERSTE poging na.
- As 'n kandidaat 'n antwoord van 'n vraag doodtrek (kanselleer) en nie oordoen nie, sien die doodgetrekte (gekanselleerde) poging na.
- Volgehoue akkuraatheid (CA) word in ALLE aspekte van die nasienriglyne toegepas, dit hou op by die tweede berekeningsfout.
- Let wel: volgehoue akkuraatheid (CA) geld nie in die geval van 'n afbreuk nie.
- Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra item.
- 'n Algemene nasien beginsel is dat indien 'n kandidaat een fout maak en daarna voortgaan met korrekte wiskunde, dat die kandidaat slegs een punt verloor
- Afronding tel as 'n afsonderlike punt.
- In Opinie tipe vrae sal punte slegs toegeken word indien relefante berekeninge aangetoon is.

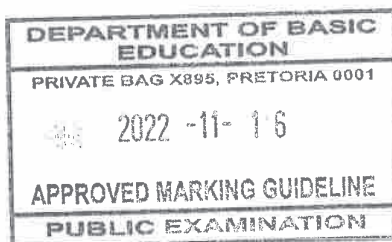
Note: Questions marked with * refers to the notes./Vrae gemerk met *, verwys na die notas.

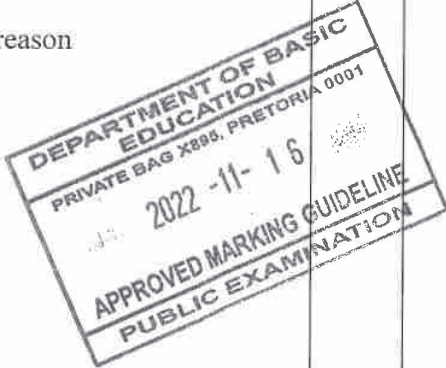
Questions where the numbers are encircled are the ones where we have a tolerance range.

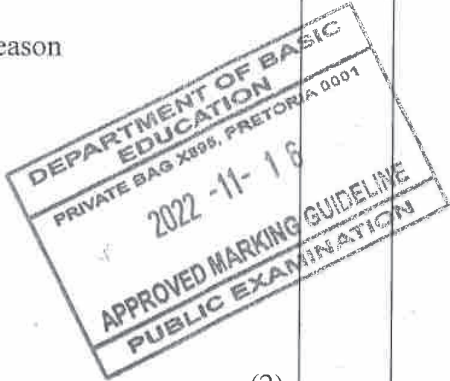
Vrae waar die nommer omkring is, is die waar ons 'n toleransie omvang het.

QUESTION/VRAAG 1 [27 MARKS/PUNTE] Answer Only AO - full marks			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
1.1.1	Z ✓✓A	2A correct time (2)	M L1 E
1.1.2*	24 hour /uur ✓✓A 12 hour /uur. ✓A	2A 1 st display 1A 2 nd display (3)	M L1 E
1.1.3*	✓A Quarter to one in the afternoon/ pm or post meridian Kwart voor een in die middag / nm ✓A OR/OF ✓A Fifteen minutes to one in the afternoon Fifteen minutes before one in the afternoon Vyftien minute voor een, namiddag	1A correct time 1A afternoon OR/OF 1A correct time 1A afternoon (2)	M L1 E
1.1.4*	2 ✓✓A	2A correct number (2)	M L1 E

Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
1.1.5	$\checkmark C$ $16 \times 60 + 45$ $= 1\ 005 \text{ minutes/minute}$ $\checkmark A$	1C multiply hours by 60 1A adding correct values (2)	M L1 M
1.2.1	$32 - (8 + 6 + 8 + 8)$ $\checkmark MA$ $= 2 \text{ bolts/boute}$ $\checkmark A$	1MA subtracting from 32 1A two bolts (2)	MP L1 E
1.2.2	2 nuts/moere $\checkmark \checkmark A$	2A correct number nuts (2)	MP L1 M
1.2.3*	Short brace $\checkmark \checkmark RT$ Kort spanstuk	2RT answer (2)	MP L1 E
1.3.1	Bar scale/staaf skaal $\checkmark \checkmark A$ OR/OF Line scale or linear scale / lynskaal of liniêre skaal OR/OF Graphic scale / Grafiese skaal	2A Correct scale (2)	MP L1 E
1.3.2*	Gauteng $\checkmark \checkmark RT$	2RT correct province (2)	MP L1 E
1.3.3	N14 $\checkmark RT$ N17 $\checkmark RT$	1RT 1 st route 1RT 2 nd route (2)	MP L1 E
1.3.4*	7 $\checkmark \checkmark A$	2A number of destination towns (2)	MP L1 E
1.3.5	39 mm $\checkmark \checkmark A$ [allow 1 mm on both sides/laat 1 mm weerskante toe]	2A correct measurement (2)	MP L1 E
			[27]



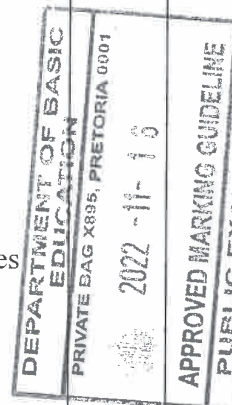
QUESTION/VRAAG 2 [36 MARKS/PUNTE]			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
2.1.1	✓✓ O To let in fresh air or ventilation. <i>Vars lug in te laat of ventilasie .</i> OR/OF ✓✓ O To let natural light in./Sunlight/sun rays to come in. <i>Om lig in te laat/sonlig/sonstrale te laat inkom.</i> OR/OF ✓✓ O For customers to enjoy the view outside. <i>Vir kliënte om die uitsig te kan geniet.</i> OR/OF ✓✓ O The windows are many because they are small sized. <i>Die vensters is klein daarom is daar so baie.</i> OR/OF ✓✓ O People outside to view the inside, hence attract customers <i>Mense kan van buite, binne toe kyk, dit trek gevolglik kliënte</i>	20 reason  (2)	MP L4 M
2.1.2	Max. no of seats /Maks. Getal stoele ✓MA $= 6 + 2 + 5 + 5 + 5 + 4 + 4 + 4 + 4 + 4 + 4 + 6$ $= 6 + 2 + 15 + 28 + 6$ ✓S $= 57$ ✓CA OR/OF Max. no. of seats/Maks. Getal stoele ✓MA $= 1 \times 6 + 2 \times 1 + 3 \times 5 + 4 \times 7 + 6 \times 1$ $= 6 + 2 + 15 + 28 + 6$ ✓S $= 57$ ✓CA	1MA adding correct numbers 1S simplification 1CA answer OR/OF 1MA multiply correct numbers 1S simplification 1CA answer AO (3)	MP L2 E
2.1.3*	13 seats/stoele. ✓✓ A	2A number of seats (2)	MP L2 E

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
2.1.4*	✓✓ O For people waiting to be seated. /Vir mense wat wag vir 'n sitplek OR/OF ✓✓ O A place you can wait for a dining table to be ready or prepared for one. / 'n Plek waar jy kan wag dat 'n tafel gereed gemaak word vir jou. OR/OF ✓✓ O To sit on while waiting for your lift after visiting the restaurant. /Om op te sit terwyl jy wag vir jou geleentheid nadat jy die restaurant besoek het. OR/OF ✓✓ O Waiting area for customers who ordered take-aways. Wag plek vir mense wat wegneemetes bestel het. OR/OF ✓✓ O A place where customers can take pictures. / 'n Plek waar kliënte fotos kan neem.	20 reason  (2)	MP L4 E
2.1.5	✓ A Walk in an Easterly direction. Then turn and walk in a Southerly direction. ✓ A Then turn and walk in an Easterly direction. ✓ A Loop in 'n Oostelike rigting. Draai en loop in 'n Suidelike rigting. draai weer en loop in 'n Oostelike rigting.	1A East 1A South 1A East (3)	MP L3 M
2.1.6*	✓ A ✓ A Number 13 is left out, there are only 20 tables. Nommer 13 is uitgelaat, daar is slegs 20 tafels. Therefore, her claim is valid. ✓ O Daarom is haar bewering geldig. ✓ O OR/OF Number of tables set for / tafels vir 1 = 6 Number of tables set for / tafels vir 2 = 1 ✓ A Number of tables set for / tafels vir 3 = 5 Number of tables set for / tafels vir 4 = 7 Number of tables set for / tafels vir 6 = 1 Total = 20 ✓ A Therefore, her claim is valid. ✓ O Daarom is haar bewering geldig. ✓ O	2A Reasoning and reflecting 10 verification OR/OF 2A Reasoning and reflecting 10 verification (3)	MP L4 M

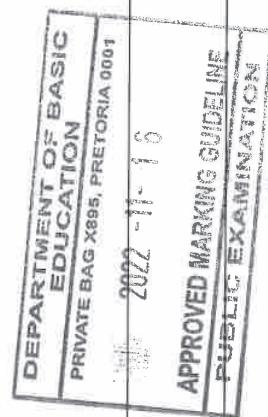
DEPARTMENT OF BASIC
EDUCATION
PRIVATE BAG X995, PRETORIA 0001
2022 -11- 16
APPROVED MARKING GUIDELINE
PUBLIC EXAMINATION (2)

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
2.3.2*	✓✓ A There is no relationship (or ratio) between distances on a map and the corresponding distance on the ground. <i>Daar is nie 'n verhouding tussen die afstande op die kaart en die ooreenstemmende afstande in die werklikheid nie.</i> OR/OF ✓✓ A One should not measure the length on the map and then expect to be able to calculate the “real life” distance from it. <i>Jy kan nie die afstande op die kaart meet en verwag dat jy die werklike afstande kan bereken nie.</i> OR/OF ✓✓ A No specific scale was used throughout to draw this map (Candidates might mention a scale e.g. 1 : 100). <i>Geen spesifieke skaal was deurgaans gebruik om hierdie kaart te teken nie. (Kandidate mag 'n skaal bv. 1: 100 noem).</i> OR/OF ✓✓ A Not to scale means the dimensions or measurements on the map are not accurate. <i>Nie op skaal beteken die afmetings op die kaart is nie akkuraat nie.</i>	2A explanation  (2)	MP L4 M
2.3.3* (a)	✓✓ O The road is overshadowing or hide/covering or obscuring the route course. <i>Die roete is obskuur of versteek of nie sigbaar waar die ander deel bo-oor dit gaan nie.</i> OR/OF ✓✓ O There is a break in the line that shows the route. <i>Die lyn wat die roete aandui word onderbreek.</i> OR/OF ✓✓ O Arrows disappear under the road / Pyle verdwyn onder die pad.	2O reasoning (2)	MP L4 M
2.3.3* (b)	✓✓ A Four (4) times/Vier keer.	2A correct number (2)	MP L1 E
2.3.4	✓✓ A South west or SW/Suidwes	2A correct direction (2)	MP L2 M
		[36]	

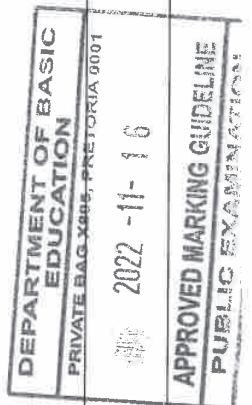
QUESTION/VRAAG 3 [29 MARKS/PUNTE]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
3.1.1	Perimeter/Omtrek $= 2 \times (239 + 89) \text{ mm}$ $= 656 \text{ mm}$ OR/OF Perimeter/Omtrek $= 239 \text{ mm} + 89 \text{ mm} + 239 \text{ mm} + 89 \text{ mm}$ $= 656 \text{ mm}$	1SF substitution 1A simplification 1A unit OR/OF 1MA adding all sides 1A simplification 1A unit AO	M L2 E
3.1.2	Height opening/closing part/Hoogte van die oop-/toemaak gedeelte $= 114 \text{ mm} - 2,5 \text{ cm} - 7 \text{ cm}$ $= 11,4 \text{ cm} - 2,5 \text{ cm} - 7 \text{ cm}$ $= 1,9 \text{ cm}$ OR/OF Height opening/closing part/Hoogte van die oop-/toemaak gedeelte $= 114 \text{ mm} - (2,5 \text{ cm} + 7 \text{ cm})$ $= 11,4 \text{ cm} - 9,5 \text{ cm}$ $= 1,9 \text{ cm}$ OR/OF Height opening/closing part/Hoogte van die oop-/toemaak gedeelte $= 114 \text{ mm} - 25 \text{ mm} - 70 \text{ mm}$ $= \frac{190 \text{ mm}}{10}$ $= 1,9 \text{ cm}$	1MA subtracting both values 1C converting 1CA simplification OR/OF 1MA subtracting both values 1C converting 1CA simplification OR/OF 1MA subtracting both values 1C converting 1CA simplification	M L2 E



Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
3.1.3 (a)	$\text{Radius} = \frac{28\text{mm}}{2} = 14\text{mm} \quad \checkmark A$ $= 1,4 \text{ cm} \quad \checkmark C$ $\text{Volume} = 3,142 \times (1,4 \text{ cm})^2 \times 8,5 \text{ cm} \quad \checkmark SF$ $= 52,34572 \text{ cm}^3$ $= 52,346 \text{ cm}^3$ OR/OF $\text{Radius} = \frac{2,8 \text{ cm}}{2} \quad \checkmark C$ $= 1,4 \text{ cm} \quad \checkmark A$ $\text{Volume} = 3,142 \times (1,4 \text{ cm})^2 \times 8,5 \text{ cm} \quad \checkmark SF$ $= 52,34572 \text{ cm}^3$ $= 52,346 \text{ cm}^3$	1A radius 1C converting 1SF radius squared 1SF substitution OR/OF 1C converting 1A radius 1SF substitution 1SF radius squared	M L3 M
3.1.3 (b)	$0,82 = \text{Mass} / \text{Massa} \div 52,346 \quad \checkmark SF$ $\text{Mass/Massa} = 0,82 \times 52,346 \quad \checkmark M$ $= 42,92372 \text{ g} \quad \checkmark A$ $= 43 \text{ g} \quad \checkmark R$	1SF substitution 1M changing the subject of the formula 1A simplification 1R rounded	M L3 M
3.2.1*	$\text{Volume} = 1,6 \text{ gallon/gelling} \times 4 \times 28 \times 5 \quad \checkmark MA$ $= 896 \text{ gallon/gelling}$ $\text{Volume} = 896 \times 3,785 \text{ l} \quad \checkmark C$ $= 3\,391,36 \text{ l} \quad \checkmark CA$ OR/OF $1,6 \text{ gallon/gelling} = 1,6 \times 3,785 \text{ l} = 6,056 \text{ l} \quad \checkmark C$ $\text{Volume water} = 6,056 \text{ l} \times 4 \times 28 \times 5 \quad \checkmark MA$ $= 3\,391,36 \text{ l} \quad \checkmark CA$	1MA multiplication 1C conversion factor 1CA simplification OR/OF 1C conversion 1MA multiplication 1CA simplification	M L3 M

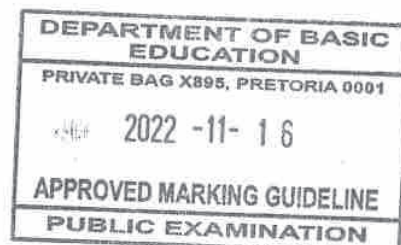


Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
	OR/OF 1 Person flushes/ <i>spoel</i> $4 \times 28 = 112$ times a month/<i>keer per maand</i> That is/<i>dit is</i> $112 \times 1,6 \text{ gal} = 179,2$ gallons/<i>gelling</i> Volume = $179,2 \times 3,785 = 678,272 \text{ l}$ ✓C Family of 5 volume/ <i>familie van 5</i> Volume = $678,272 \text{ l} \times 5 = 3\,391,36 \text{ l}$ ✓MA ✓CA OR/OF The family flushes /<i>die familie spoel</i> $4 \times 5 \times 1,6 \text{ gal} = 32 \text{ gal / day}$ Volume = $32 \text{ gal/day} \times 3,785 = 121,12 \text{ gal/day}$ ✓C For the month /<i>vir 'n maand</i> ✓MA Volume = $121,12 \text{ gal/day} \times 28 \text{ days} = 3\,391,36 \text{ l}$ ✓CA OR/OF Toilet flushed in Feb/ <i>Spoel in Feb</i> $= 5 \times 4 \times 28$ $= 560$ Volume = $1,6 \times 3,785 \times 560$ ✓C ✓MA $= 3\,391,36 \text{ l}$ ✓CA	OR/OF 1C conversion 1MA multiplication 1CA simplification OR/OF 1C conversion 1MA multiplication 1CA simplification OR/OF 1C conversion 1MA multiplication 1CA simplification	(3)
3.2.2*	✓✓O Restrict the volume of water flowing into the cistern <i>Verminder die volume water wat in die spoelbak invloei</i> OR/OF Repair all the leaks/<i>Maak alle lekplekke reg</i> ✓✓O OR/OF ✓✓O Place a brick into the cistern/<i>Sit 'n baksteen in die spoelbak</i> OR/OF ✓✓O Install a newer model / <i>Installeer 'n nuwer model</i>	2O any valid way to reduce volume of water in the cistern	(2) M L4 E

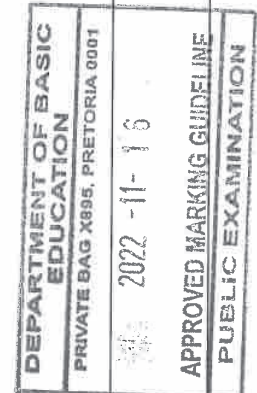


Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
3.3.1	$17:30 - 15 \text{ min} - 40 \text{ min} - 40 \text{ min}$ $= 15:55$	1MA subtracting 15 min from 17:30 1MA subtracting two cooking times 1CA simplification AO	M L2 M (3)
3.3.2	$^{\circ}\text{C} = (^{\circ}\text{F} - 32^{\circ}) \times \frac{5}{9}$ $= (325 - 32) \times \frac{5}{9}$ $= 162,777..$ $\approx 160^{\circ}\text{C}$	1SF correct substitution 1CA simplification 1R rounding AO	M L2 E (3)
3.3.3*	$4 \frac{1}{4} \times 2 = 8 \frac{1}{2} \text{ cups/koppies}$ $250 \text{ ml} = 0,25 \text{ l}$ Number of litres/Hoeveelheid liter $= 8 \frac{1}{2} \times 0,25 \text{ l} = 2,125 \text{ l}$ OR/OF $1 \text{ cup/koppie} = 250 \text{ ml}$ $4 \text{ cups /koppies} = 4 \times 250 \text{ ml} = 1\,000 \text{ ml}$ $\frac{1}{4} \text{ cup/koppie} = \frac{1}{4} \times 250 \text{ ml} = 62,5 \text{ ml}$ For 1 tart she needs /vir 1 tert benodig sy $= 1\,000 + 62,5 = 1\,062,5 \text{ ml}$ For 2 tarts/vir 2 terte $= 1\,062,5 \text{ ml} \times 2 = 2\,125 \text{ ml}$ $= 2,125 \text{ l}$ OR/OF $1 \text{ tart /tert} : 4 \frac{1}{4} \times 250 \text{ ml} = 1\,065,5 \text{ ml}$ $2 \text{ tarts /terte} : 1\,065,5 \text{ ml} \times 2 = 2\,125 \text{ ml}$ Total /totaal: $2\,125 \text{ ml} \div 1\,000 = 2,125 \text{ l}$	1M multiplying with 2 1A total cups 1C convert to litre 1CA simplification OR/OF 1MA multiplying with 250 1A milk needed for 1 tart 1C convert to litre 1CA simplification OR/OF 1MA multiplying with 250 1A milk needed for 1 tart 1C convert to litre 1CA simplification	M L3 M

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
	OR/OF $4\frac{1}{4} = \frac{17}{4} \text{ cups /koppies}$ For 1 tart/ vir 1 tert $\frac{17}{4} \times 250 \text{ ml} = 1\,062,5 \text{ ml} = 1,0625 \text{ l}$ Milk for 2 tarts /Melk vir 2 terte $= 1,0625 \text{ l} \times 2 = 2,125 \text{ l}$ OR/OF $4\frac{1}{4} \times 2 \times 250 \text{ ml} = 2\,125 \text{ ml} = 2,125 \text{ l}$ OR/OF $4,25 \times 2 = 8,5 \text{ cups/koppies}$ 1 cup /koppie = 250 ml $8,5 \text{ cups /koppies} = x$ $x = \frac{8,5 \text{ cups}}{1 \text{ cup}} \times 250 \text{ ml} = 2\,125 \text{ ml} = 2,125 \text{ l}$ OR/OF $2(4 \times 250) = 2\,000 \text{ ml}$ $2(\frac{1}{4} \times 250) = 125 \text{ ml}$ Total/Totaal = 2 125 ml	OR/OF 1MA multiplying with 250 1C convert to litre 1A milk needed for 1 tart 1CA simplification OR/OF 1MA multiplying with 2 1A total cups 1CA simplification 1C convert to litre OR/OF 1MA multiplying with 2 1A total cups 1CA simplification 1C convert to litre OR/OF 1MA multiplying with 2 1A total cups 1CA simplification 1C convert to litre	(4)
		[29]	



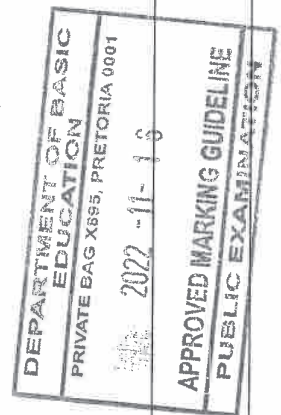
QUESTION/VRAAG 4 [32 MARKS/PUNTE]			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
4.1.1	The total length/Totale lengte $= 19 \text{ cm} + 23 \text{ cm} + 10 \text{ cm} + 25 \text{ cm} + 23 \text{ cm} + 41 \text{ cm} \quad \checkmark \text{MA}$ $= 141 \text{ cm} \quad \checkmark \text{CA}$ $= 1\,410 \text{ mm} \quad \checkmark \text{C}$ $\approx 1\,500 \text{ mm}$	1MA adding correct values 1CA simplification 1C conversion (3)	MP L2 M
4.1.2	The 2 sides are against the back which is 14 cm wide. The thickness of the boards is 20 mm <i>Die 2 sykante is teen die agterkant wat 14 cm breed is. Die dikte van die plank is 20 mm</i> Floor against the Back/Vloer teen die agterkant $= 14 \text{ cm} - 20 \text{ mm} - 20 \text{ mm} \quad \checkmark \text{MA}$ $= 14 \text{ cm} - 2 \text{ cm} - 2 \text{ cm} \quad \checkmark \text{C}$ $= 10 \text{ cm} \quad \checkmark \text{A}$ His statement is correct/Sy bewering is korrek $\checkmark \text{O}$ OR/OF If the 10 cm side goes against the back: <i>Indien die 10cm teen die rugkant is:</i> $14 \text{ cm} - 10 \text{ cm} = 4 \text{ cm} \text{ is left on the sides/bly oor vir die kante} \quad \checkmark \text{MA}$ $4 \text{ cm} \div 2 = 2 \text{ cm on each side /elke kant.} \quad \checkmark \text{A}$ Board thickness/plank dikte = 20 mm = 2 cm $\checkmark \text{C}$ His statement is correct./ Sy bewering is korrek $\checkmark \text{O}$ OR/OF Thickness of the board / dikte van die plank = 20 mm = 2 cm $\checkmark \text{C}$ $10 \text{ cm} + 2 \text{ cm} + 2 \text{ cm} = 14 \text{ cm} \quad \checkmark \text{MA}$ His statement is correct./ Sy bewering is korrek $\checkmark \text{O}$	1MA subtracting 1C conversion 1A simplification 1O verification OR/OF 1MA subtracting 1A simplification 1C conversion 1O verification OR/OF 1C conversion 1MA adding 1A simplification 1O verification	MP L4 D



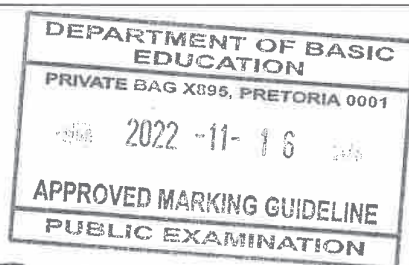
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
	OR/OF The thickness of each side / <i>dikte aan elke kant</i> = 2 cm ✓C Floor against the back side / <i>Vloer teen rugkant</i> = (14 cm – 10 cm) ÷ 2 ✓MA = 4 cm ÷ 2 = 2 cm ✓A His statement is correct. / <i>Sy bewering is korrek</i> ✓O	OR/OF 1C conversion 1MA subtracting 1A simplification 1O verification (4)	
4.1.3	Area of rectangle / <i>Oppervlakte van reghoek</i> = 23 cm × 14 cm ✓SF = 322 cm² ✓A Radius of the hole / <i>Radius van opening</i> = 4,2 cm ÷ 2 = 2,1 cm ✓A Size of the hole / <i>Grootte van opening</i> = 3,142 × (2,1)² ✓SF = 13,85622 cm² ✓CA Exposed front area / <i>Voorste buite oppervlakte</i> = 322 cm² – 13,85622 cm² = 308,14378 cm² ✓CA	1SF correct values 1A simplification 1A radius value 1SF substitution 1CA simplification 1CA simplification NPR (6)	M L3 D

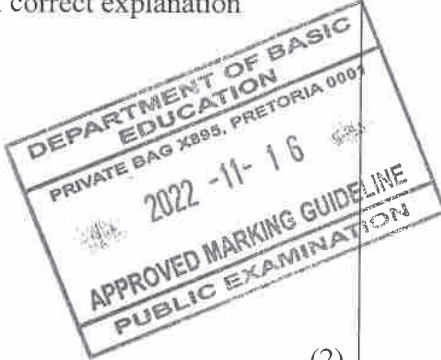


Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
4.2	Coat/Laag 1: 10 m^2 use 1ℓ $0,2888 \text{ m}^2$ needs $n \ell$ $n = \frac{0,2888}{10} \ell \quad \checkmark \text{MA}$ $= 0,02888 \ell \quad \checkmark \text{A}$ Coat/Laag 2: 14 m^2 use 1ℓ $0,2888 \text{ m}^2$ needs $n \ell$ $n = \frac{0,2888}{14} \ell = 0,0206285... \ell \quad \checkmark \text{A}$ Total for 3 coats/Totaal vir 3 lae $= 0,02888 + 2 \times 0,0206285... \ell \quad \checkmark \text{MCA}$ $= 0,070137... \ell \quad \checkmark \text{CA}$ Number of birdhouses with $500 \text{ m} \ell$ <i>Getal voëlhuysies met $500 \text{ m} \ell$</i> $= \frac{0,500}{0,070137} \quad \checkmark \text{MCA}$ $\approx 7 \quad \checkmark \text{CA}$ His statement is correct/Sy bewering is korrek $\checkmark \text{O}$ OR/OF Coat/Laag 1: 10 m^2 use 1ℓ $0,2888 \text{ m}^2$ needs $n \ell$ $n = \frac{0,2888}{10} \ell \quad \checkmark \text{MA}$ $= 0,02888 \ell \quad \checkmark \text{A}$ Coat/Laag 2: 14 m^2 use 1ℓ $0,2888 \text{ m}^2$ needs $n \ell$ $n = \frac{0,2888}{14} \ell = 0,0206285... \ell \quad \checkmark \text{A}$ Total for 3 coats /Totaal vir 3 lae $= 0,02888 + 2 \times 0,0206285... \ell \quad \checkmark \text{MCA}$ $= 0,070137... \ell \quad \checkmark \text{CA}$ For 7 birdhouses/Vir 7 voëlhuysies $= 0,070137 \times 7 \quad \checkmark \text{MCA}$ $= 0,490959$ $= 490 \text{ m} \ell \quad \checkmark \text{CA}$ His statement is correct/Sy bewering is korrek $\checkmark \text{O}$	1MA ratio 1A simplification 1A simplification 1MCA adding 3 values 1CA simplification 1MCA dividing converted values 1CA simplification 1O conclusion OR/OF 1MA ratio 1A simplification 1A simplification 1MCA adding 3 values 1CA simplification 1MCA multiplying by 7 1CA number of millilitres 1O conclusion	M L4 D



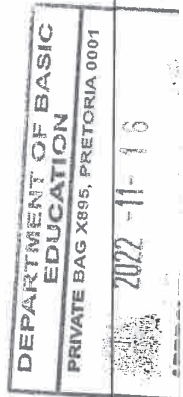
Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
	OR/OF Total area for 7 birdhouses /Totale oppervlakte vir 7 voëlhuysies = $7 \times 0,2888 \text{ m}^2 = 2,0216 \text{ m}^2$ ✓MA 1st coat/laag: 1 ℓ covers/bedek 10 m^2 $n \text{ ℓ covers /bedek } 2,0216 \text{ m}^2$ $n = \frac{2,0216}{10} = 0,20216 \text{ ℓ}$ ✓MA ✓A 2nd coat/laag: 1 ℓ covers/bedek 14 m^2 $x \text{ ℓ covers/bedek } 2,0216 \text{ m}^2$ $x = 0,1444 \text{ ℓ}$ ✓A and 3rd coat/laag = $0,1444 \text{ ℓ}$ Total paint needed /totale hoeveelheid verf nodig = $0,20216 \text{ ℓ} + 0,1444 \text{ ℓ} + 0,1444 \text{ ℓ}$ ✓MCA = $0,49096 \text{ ℓ}$ ✓CA = $490,96 \text{ ml}$ ✓CA Correct /korrek ✓O	OR/OF 1MA multiplying by 7 1MA ratio 1A simplification 1A simplification 1MCA adding 3 values 1CA simplification 1CA number of millilitres 1O conclusion (8)	
4.3.1 (a)	Rental + Transport/Huur en vervoer ✓RT = R250 + R100 ✓MA = R350	1RT correct values 1MA adding correct values (2)	M/F L1 E
4.3.1* (b)	Wooden boards each/Houtplanke elk = $\frac{R287,40}{6} = R47,90$ ✓MA Total cost for one/Totale koste vir een $p = R47,90 + R21,40 + R10,70$ ✓MCA = R80 ✓CA	1MA unit price 1MCA adding ALL correct values 1CA simplification (3)	M/F L2 M



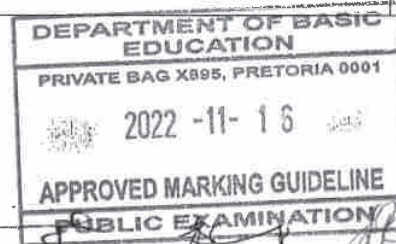
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
4.3.2*	✓✓ A Break-even point is when the expenses for making, transporting the birdhouses and renting the stall is equal to the income from selling the birdhouses. <i>Gelykbreekpunt is waar die uitgawes vir die maak, vervoer en huur van die stalletjie is gelyk aan die inkomste uit die verkoop van die voëlhuises.</i> OR/OF ✓✓ A Break-even point is where the number of birdhouses sold equals the expense (cost) to make the birdhouses. <i>Gelykbreekpunt is waar die getal voëlhuises wat verkoop word gelyk is aan die uitgawes (koste) om hulle te maak</i> OR/OF ✓✓ A In this context he must make and sell 5 birdhouses and his expense and income will both be R750 <i>In hierdie konteks moet hy 5 voëlhuises maak en verkoop en sy uitgawes en inkomste is beide R750</i>	2A correct explanation  (2)	M/F L1 E
4.3.3*	Expense for/Uitgawe vir 15 is R1 550 ✓RT Income/Inkomste 12 is R1 800 ✓RT ✓A Profit /Wins $= R1\ 800 - R1\ 550$ $= R250$ ✓CA OR/OF Income from selling /Inkomste uit verkoop van 12 $= R150 \times 12 = R1\ 800$ ✓A Expense for making 15 / Uitgawes om 15 te maak $= R350 + R80 \times 15 = R1\ 550$ ✓A He makes a profit / Hy maak 'n wins $R1\ 800 - R1\ 550 = R250$ ✓CA	1RT expense 1RT income 1A profit 1CA simplification OR/OF 1A income 1A expense 1A profit 1CA simplification (4) [32]	M/F L3 M

QUESTION/VRAAG 5 [26 MARKS/PUNTE]																	
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L														
5.1	<table><tr><th>Location/Plek</th><th>Detail/Besonderheid</th></tr><tr><td>01</td><td>a</td></tr><tr><td>02</td><td>f ✓A</td></tr><tr><td>03</td><td>b ✓A</td></tr><tr><td>04</td><td>d ✓A</td></tr><tr><td>05</td><td>c ✓A</td></tr><tr><td>06</td><td>e</td></tr></table>	Location/Plek	Detail/Besonderheid	01	a	02	f ✓A	03	b ✓A	04	d ✓A	05	c ✓A	06	e	1A 1 st correct one 1A 2 nd correct one 1A 3 rd correct 1A last correct OR/OF 1A 1 st correct one 1A 2 nd correct one 1A 3 rd correct 1A last correct OR/OF 1A 1 st correct one 1A 2 nd correct one 1A 3 rd correct 1A last correct OR/OF 1A 1 st correct one 1A 2 nd correct one 1A 3 rd correct 1A last correct (4)	MP L2 M
	Location/Plek	Detail/Besonderheid															
	01	a															
	02	f ✓A															
	03	b ✓A															
	04	d ✓A															
	05	c ✓A															
	06	e															
	OR/OF 02. Pass Kamakura /ry deur Kamakura ✓A 03. Visit Mount Fuji / besoek Fuji ✓A 04. Visit the Wooden Temple / Hout tempel ✓A 05. Visit the Aquarium / grootste akwarium ✓A																
	OR/OF (a) – 01 (b) – 03 ✓A (c) – 05 ✓A (d) – 04 ✓A (e) – 06 (f) – 02 ✓A																
5.2.1*	2022 – 1707 = 315 years/jaar ✓A Number of decades/Getal dekades = $\frac{315}{10}$ ✓A = 31,5 ✓CA	1A number of years 1A decade 1CA simplification (3)	M L2 M														
5.2.2	Nov: 30 – 11 = 19 days/dae ✓A Dec: 15 days ✓A Elapsed days between/Verloopte dae tussen = 19 + 15 = 34 ✓CA OR/OF From/van 12 Nov to/tot 11 Dec = 30 days/dae ✓A From /van 12 Dec to /tot 15 Dec = 4 days dae ✓A Total days between /Totale dae tussen = 30 + 4 = 34 ✓CA	1A days in Nov 1A number of days in Dec 1CA total number of days OR/OF 1A number of days in Nov 1A days in Dec 1CA total number of days (3)	M L1 E														

Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
5.3.1*	$150 : 250 \quad \checkmark A$ $\checkmark CA$ $= 3 : 5$	1A correct values and order 1CA simplification (2)	M L1 E
5.3.2	$1 \text{ m} = 3,281 \text{ feet/voet}$ $\text{Height} = \frac{1\,092,1916 \text{ feet}}{3,281 \text{ feet per metre}} \quad \checkmark MA$ $\approx 332,884 \text{ m} \quad \checkmark CA$	1MA dividing 1CA simplification NPR (2)	M L2 E
5.3.3*	$\% \text{ discount/afslag} = \frac{\text{discount amount}}{\text{original price}} \times 100\% \quad \checkmark MA$ $= \frac{1\,200 - 960}{1\,200} \times 100\% \quad \checkmark RT$ $\checkmark A$ $= \frac{240}{1\,200} \times 100\% \quad \checkmark A$ $= 20\% \quad \checkmark CA$ $\checkmark O$ His statement is incorrect/Sy bewering is verkeerd. OR/OF $\text{Percentage /Persentasie} = \frac{960}{1\,200} \times 100\% \quad \checkmark MA$ $\checkmark A$ $= 80\% \quad \checkmark A$ Percentage discount /Persentasie afslag $= 100\% - 80\%$ $= 20\% \quad \checkmark CA$ Incorrect / verkeerd $\checkmark O$ OR/OF $\checkmark MA \quad \checkmark RT$ $\text{Discount /afslag} = 30\% \times 1\,200 = 360 \text{ yen} \quad \checkmark A$ Discounted amount should be /Afslag moes wees: $1\,200 - 360 = 840 \text{ yen} \quad \checkmark MA$ $\checkmark CA$ Incorrect / verkeerd $\checkmark O$	1MA percentage calculation 1RT correct values 1A denominator 1A numerator 1CA simplification 1O verification OR/OF 1MA percentage calculation 1RT correct values 1A denominator 1A simplification 1CA simplification 1O verification OR/OF 1MA percentage calculation of correct values 1RT correct values 1A simplification 1MA subtracting 1CA simplification 1O verification	M L4 M

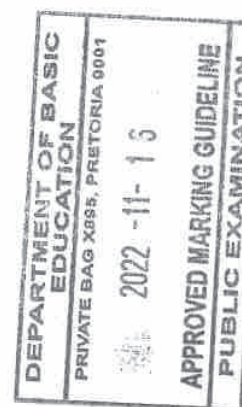


Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
	OR/OF Difference in ticket price / <i>Verskil in kaartjie pryse</i> $\checkmark$RT $\checkmark$MA $\checkmark$A $= 1\,200 - 960 = 240$ yen $\checkmark$MA $\checkmark$A Discount / <i>afslag</i> $= 30\% \times 1\,200 = 360$ yen Incorrect / <i>verkeerd</i> $\checkmark$O OR/OF $\checkmark$MA $\checkmark$A $100\% - 30\% = 70\%$ Discounted Amount / <i>Bedrag na afslag</i> $\checkmark$MA $\checkmark$RT $= \frac{70}{100} \times 1\,200$ $= 840$ yen $\checkmark$A His statement is incorrect, the price for adults is 960 yen $\checkmark$O <i>Sy bewering is nie korrek want die bedrag vir volwasse nes is 960 jen</i>	OR/OF 1RT correct values 1MA subtracting 1A simplification 1MA percentage calculation 1A simplification 1O verification OR/OF 1MA subtracting 1A simplification 1RT correct values 1MA percentage calculation 1A simplification 1O verification (6)	
5.4	Duration of the trip / <i>Duur van rit</i> $= 12:03 - 8:06$ $= 3\text{ h } 57\text{ min}$ $\checkmark$A Total stopping time / <i>Totale tyd van stoppe</i> $= 8 \times 4\text{ min} = 32\text{ min}$ $\checkmark$A Time that the train was moving / <i>Tyd wat trein beweeg</i> $= 3\text{ h } 57\text{ min} - 32\text{ min}$ $= 3\text{ h } 25\text{ min}$ $\checkmark$CA Distance = speed $\times$ time <i>Afstand = spoed $\times$ tyd</i> $816\text{ km} = \text{speed} \times 3\text{ h } 25\text{ min}$ $\checkmark$SF Speed / <i>Spoed</i> $= \frac{816\text{ km}}{3\text{ h } 25\text{ min}} = \frac{816\text{ km}}{3,416667\text{ h}}$ $\checkmark$S $= 238,83\text{ km/h}$ $\checkmark$CA	1A duration 1A total stopping time 1CA travelling time 1SF substitution 1S change of subject of the formula 1CA simplification	M L3 D

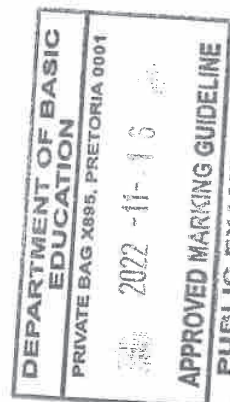


Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
	OR/OF Duration of the trip/<i>Duur van rit</i> = 12:03 – 8:06 = 3 h 57 min = 237 min ✓A Total stopping time/<i>Totale tyd van stoppe</i> = 8 × 4 min = 32 min ✓A Time that the train was moving/ <i>Tyd wat trein beweeg</i> = 237 min – 32 min = 205 min ✓CA Distance = speed × time <i>Afstand = speed × tyd</i> 816 km = speed × 205 min ✓SF Speed/<i>Speed</i> = $\frac{816 \text{ km}}{205 \text{ min}}$ ✓S ≈ 3,980487.. km/min ✓CA	OR/OF 1A duration 1A total stopping time 1CA travelling time 1SF substitution 1S change of subject of the formula 1CA simplification NPR (6)	
		[26]	
		TOTAL: 150	

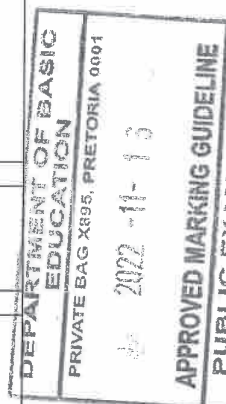
Mathematical Literacy P2 Analasys Grid Nov 2022									Difficulty level				
	Maps	Meas	Prob	L1	L 2	L 3	L 4	Total		E	M	D	
1.1.1		2		2				2	27	2			
1.1.2		3		3				3		3			
1.1.3		2		2				2		2			
1.1.4		2		2				2		2			
1.1.5		2		2				2			2		
1.2.1	2			2				2		2			
1.2.2	2			2				2			2		
1.2.3	2			2				2		2			
1.3.1	2			2				2		2			
1.3.2	2			2				2		2			
1.3.3	2			2				2		2			
1.3.4	2			2				2		2			
1.3.5	2			2				2		2			
2.1.1	2						2	2		36		2	
2.1.2	3				3			3			3		
2.1.3	2				2			2	2				



2.1.4	2						2	2		2		
2.1.5	3					3		3			3	
2.1.6	3						3	3			3	
2.2.1			2	2				2		2		
2.2.2			4		4			4		4		
2.2.3			2	2				2		2		
2.2.4			3		3			3			3	
2.3.1	2			2				2		2		
2.3.2	2						2	2			2	
2.3.3(a)	2						2	2			2	
2.3.3(b)	2			2				2		2		
2.3.4	2				2			2			2	
3.1.1		3			3			3		3		
3.1.2		3			3			3		3		
3.1.3a		4				4		4			4	
3.1.3b		4				4		4			4	
3.2.1		3				3		3			3	
3.2.2		2					2	2		2		
3.3.1		3			3			3			3	
3.3.2		3			3			3		3		
3.3.3		4				4		4	29		4	
4.1.1	3				3			3			3	
4.1.2	4						4	4				4
4.1.3		6				6		6				6
4.2.2		8					8	8				8
4.3.1a		2		2				2		2		
4.3.1b		3			3			3	32		3	
4.3.2		2		2				2		2		
4.3.3		4				4		4			4	
5.1	4				4			4			4	
5.2.1		3			3			3			3	
5.2.2		3		3				3		3		
5.3.1		2		2				2		2		
5.3.2		2			2			2		2		
5.3.3		6					6	6			6	
5.4		6				6		6	26			6
	52	87	11	44	41	34	31	150	150	64	62	24
	34.7	58.0	7.3	29.3	27.3	22.7	20.7	100.0		42.7	41.3	16.0
Target	40%	55%	5%	30%	30%	20%	20%	100%		40%	40%	20%



	NOTES				
1.1.2	Digital and Analogue <i>Digitaal en Analoog</i>	2 marks			
1.1.3	Twelve forty-five in the afternoon Forty-five minutes past 12 in the afternoon	2 marks			
1.1.4	If B & E is written Correct times - 12:45 & 16:45	1 mark			
1.2.3	Screw/s	2 marks			
1.3.2	Free State	2 marks			
1.3.4	Listing only all 7 names	1 mark			
2.1.3	Accept 6	1 mark			
2.1.4	Accept Decorating purposes For people to take pictures Health reasons Outside for people who smoke	2 marks			
2.1.6	Accept Invalid –only when they wrote following explanation: There are 21 tables because table 18 is made up of two $\times$ 3 - seater tables (Table 13 and Table 18)	3 marks			
2.2.3	Options listed BVI BVM BSI BSM	1 mark			
2.2.4	$\frac{2}{4} \times 100\% = 50\%$	3 marks			
2.3.2	Free hand sketch	2 marks			
2.3.3 (a)	The bridges are indicated with the number 10 and 110 on each side of the streets.	2 marks			
2.3.3 (b)	Accept 5	2 marks			
3.2.1	If ONE value is missing <table border="1"> <tr> <td>$1,6 \times 4 \times 28$ = 179,2 gallons $179,2 \times 3,785$ = 678,272 ℓ</td> <td>$1,6 \times 4 \times 5$ = 32 gallons $32 \times 3,785$ = 121,12 ℓ</td> <td>$1,6 \times 28 \times 5$ = 224 gallons $224 \times 3,785$ = 847,84 ℓ</td> </tr> </table>	$1,6 \times 4 \times 28$ = 179,2 gallons $179,2 \times 3,785$ = 678,272 ℓ	$1,6 \times 4 \times 5$ = 32 gallons $32 \times 3,785$ = 121,12 ℓ	$1,6 \times 28 \times 5$ = 224 gallons $224 \times 3,785$ = 847,84 ℓ	2 marks
$1,6 \times 4 \times 28$ = 179,2 gallons $179,2 \times 3,785$ = 678,272 ℓ	$1,6 \times 4 \times 5$ = 32 gallons $32 \times 3,785$ = 121,12 ℓ	$1,6 \times 28 \times 5$ = 224 gallons $224 \times 3,785$ = 847,84 ℓ			



3.2.2	Practical examples to restrict flow into the cistern are e.g. - Bend the arm that carries the float down - push the handle up before all the water runs out. - short flush Flush less	2 marks
3.3.3	Failure to multiply by 2	3 marks
4.3.1 (b)	Accept: Expenses = R350 + $p \times$ number $R430 = R350 + p \times 1$ $p = R430 - R350 = R80$	3 marks
4.3.2	At break-even no profit or loss is made.	2 marks
4.3.3	Showing Income = R1 800 and Expense = R1 550 and concluding profit without the calculation	4 marks
5.2.1.	Accept 31 and 32	3 marks
5.3.1	Accept ratio simplified to 1:1,67 or 0,6 : 1 or $\frac{3}{5}$	2 marks
5.3.3	Accept correct answers if multiplied with 60. E.g. $1\ 200 \times 60 = 72\ 000$ yen $960 \times 60 = 57\ 600$ yen $\% \text{ discount / afslag} = \frac{72\ 000 - 57\ 600}{72\ 000} \times 100\%$ ✓RT ✓A ✓MA $= 20\%$ ✓CA ✓O His statement is wrong / Sy bewering is nie korrek nie OR/OF $1\ 200 \times 60 = 72\ 000$ yen ✓RT $960 \times 60 = 57\ 600$ yen ✓MA $30\% \times 72\ 000 \text{ yen} = 21\ 600 \text{ yen}$ ✓A $72\ 000 \text{ yen} - 21\ 600 \text{ yen}$ ✓MA $= 50\ 400 \text{ yen}$ ✓A ✓O His statement is wrong / Sy bewering is nie korrek nie	6 marks

