GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PREPARATORY EXAMINATION

2016

MEMORANDUM

MATHEMATICAL LITERACY P2 (10602)

13 pages

Codes	Explanation
M	Method
MA	Method with Accuracy
CA	Consistent Accuracy
A	Accuracy
C	Conversion
D	Define
J	Justification / Reason / Explain
S	Simplification
RT/RD/RG	Reading from a table OR a graph OR a diagram OR a map OR a plan
F	Choosing the correct formula
SF	Substitution in a formula
O	Opinion
P	Penalty, e.g. for no units, incorrect rounding-off, etc.
R	Rounding-off
NP	No penalty for rounding-off OR omitting units

GAUTENG DEPARTMENT OF EDUCATION
PREPARATORY EXAMINATION

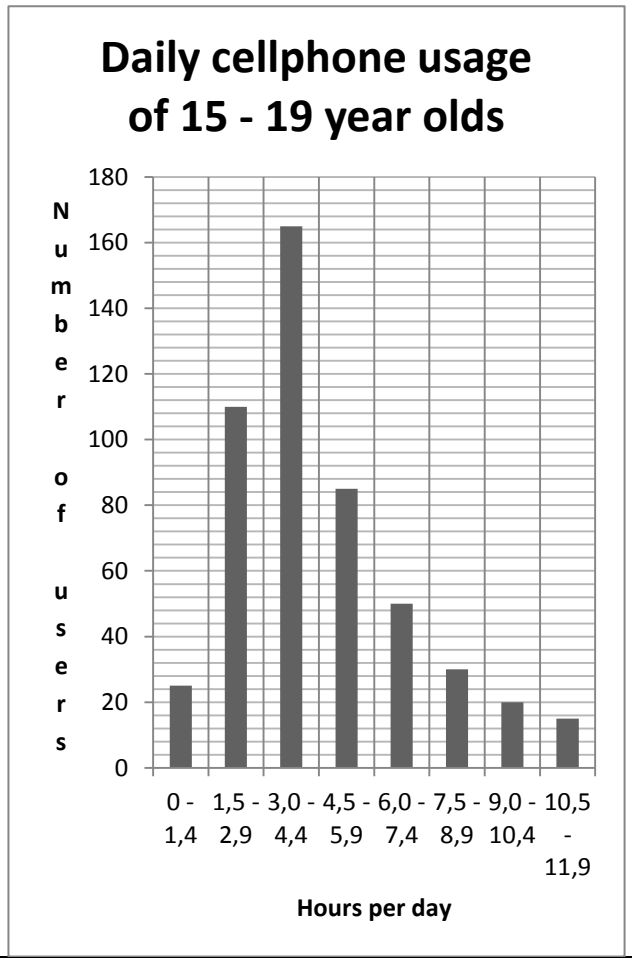
MATHEMATICAL LITERACY
(Second Paper)

MEMORANDUM

KEY TO TOPIC SYMBOL:

F = Finance; M = Measurement; MP = Maps, Plans and other representations

QUESTION 1 [47]			
Ques	**Solution**	**Explanation**	**Level**
1.1.1	**A** = 500 – (25+110+85+50+30+20+15) ✓MA = 500 – 335 = 165 ✓A	1MA Subtraction all values 1A Answer (2)	F2
1.1.2	Percentage of total number of users ✓MA $= \frac{93+85+165+85+203+98}{372+500+596} \times 100\%$ ✓M ✓MA $= \frac{729}{1468} \times 100\%$ = 49,6594…% ≈ 49,7% ✓A	1MA Numerator correct values added 1MA Denominator correct values added 1M Multiply by 100 1A Answer (4)	F3

1.1.3		1MA Bars not touching 4A For every two bars Correct (total of 1 mark for every two correct bars) **Accept if histogram drawn** (5)	F3
1.1.4	Percentage of group using cellphones for between 10,5 and 11,9 hours $= \frac{15}{500} \times 100\%$ ✓ MA = 3% ✓A 3% is a very small portion of the whole group which means that the newspaper's comments that "many South African cell phone users in this age group use their cell phone for more than 10,5 hours per day" is incorrect. ✓✓O **OR** Any other plausible conclusion	1MA Multiply by 100 1A Answer 2O Opinion (4)	F4

Ques	Solution	Explanation	Level
1.2.1a	Tellicom: Total cost = R250 + R0,80 ×(Number of minutes – 200) + R1,10 × Number of minutes per fax ✓F Renewtel: Total cost = R350 + R0,90 ×(Number of minutes – 400) + R1,20 × Number of minutes per fax ✓F	1F Formula for Tellicom 1F Formula for Renewtel (2)	F3
1.2.1b	Tellicom: Total cost = R250 + R0,80 × (500 – 200) ✓SF = R250 + R240 = R490 ✓CA Renewtel: Total cost = R350 + R0,90 × (500 – 400) ✓SF = R350 + R90 = R440 ✓CA Mr. Ismael's claim is correct. ✓J	1SF Substitution 1CA Answer 1SF Substitution 1CA Answer 1J Justification (5)	F3
1.2.2a	Total duration of faxes = Number of faxes × Minutes per fax = 125 × 2,5 minutes = 312,5 minutes ✓A Tellicom total cost = Cost of calls + R1,10 × Number of minutes = R490 + R1,10 × 312,5 minutes ✓M = R490 + R343,75 =R833,75 ✓CA	1A Total number of minutes 1M Using correct formula 1CA Answer **CA from Ques.1.2.1b** (3)	F3

Ques	Solution	Explanation	Level
1.2.2b	Number of faxes sent between 08:00 and 20:00 = 25% × 125 = 31,25 ≈ 32 faxes ✓A Number of faxes sent after 20:00 = 125 – 32 = 93 faxes ✓A Discount = 5% × (93 × R1,20) ✓MA $= \frac{5}{100} \times R111{,}60$ = R5,58 ✓A Renewtel total cost = Total call cost + (Number of faxes before 20:00 × R1,20) + (Cost of faxes before discount – discount) = R440 + (32 × R1,20) + (R111,60 – R5,58) ✓M = R440 + R38,00 + R106,02 = R584,42 ✓CA	1A Number of faxes before 20:00 1A Number of faxes after 20:00 1MA Calculating discount 1A Answer 1M Calculating and adding correct values 1CA Answer **CA from Ques. 1.2.1** (6)	F4
1.2.3	Mr. Ismael must decide to go with Renewtel as their overall cost is the lowest on call cost only as well as total cost including faxes sent. ✓✓O	2O Opinion on decision **Accept any similar opinion** (2)	F4

Ques	Solution	Explanation	Level
1.3.1	Discrete data ✓A All answers are whole numbers ✓J	1A Answer 1J Justification (2)	D2
1.3.2	Total number of matchboxes sample = 1 + 3 + 4 + 2 + 3 + 5 + 3 + 3 + 1 ✓MA = 25 ✓A	1MA Addition correct values 1A Answer (2)	D2
1.3.3	Percentage of sample less than 50 matches $= \frac{10}{25} \times 100\%$ ✓M ✓MA = 40% ✓A	1MA Fraction with correct values 1M Multiply with 100 1A Answer (3)	D2
1.3.4	Minimum = 46 matches ✓A Maximum = 54 matches ✓A	1A Minimum value 1A Maximum value (2)	D2
1.3.5	Mean = $\frac{46+47+\cdots+53+54}{25}$ ✓MA $= \frac{1251}{25}$ ✓MA = 50,04 ✓A	1MA Addition all values 1MA Divide by 25 1A Answer (3)	D2
1.3.6	To calculate the median Mr. Ismael has to arrange the set of data in ascending order, then find the middle value. ✓✓J	2J Justification (2)	D4

QUESTION 2 [25]			
Ques	**Solution**	**Explanation**	**Level**
2.1.1	Volume = ½*bh* × *thickness* = ½ × 3cm× 2,7cm × 1,5 cm ✓SF = 6,075 cm^3 ≈ 6,1 cm^3 ✓A✓U	1SF Substitution 1A Answer 1U Unit **NP for rounding** (3)	M2
2.1.2	Number of strawberry chocolates to fit = Length of prism ÷ Breadth of chocolate = 21 cm ÷ 1,5 cm ✓M ✓MA = 14 chocolates ✓A	1M Division 1MA Using correct values 1A Answer (3)	M2
2.1.3	Volume of cylindrical chocolate = $\pi r^2 \times h$ = 3,142 ×(1,5 cm)^2 ×1,5 cm ✓SF = 3,142 ×2,25 cm^2×1,5 = 10,6 cm^3 ✓A Volume of box not filled = 81 cm^3 – 6 × 10,60 cm^3 ✓MA = 17,4 cm^3 ✓A	1SF Substitution 1A Answer 1MA Subtracting 6 × capacity 1A Answer (4)	M4
2.1.4	Cost of 8 *kg* in rand = R14,26 ×\$723,70 ✓MA = R10 319,962 ≈ R10 319,96 ✓A Cost of 1 *kg* chocolate = $\frac{R10\,319,96}{8kg}$ ✓MA = R1 289,995 ≈ R1 290 ✓AR	1MA Multiplication 1A Answer 1MA Fraction with correct values 1AR Answer and rounding (4)	F4

2.2.1	Shop 250 ✓RM It is in the courtyard ✓J **OR** Shop 245 ✓RM It is central to all the shops ✓J **OR** Shop 238 – 244 ✓RM It is close to the entrance ✓J **OR** Shop 260 ✓RM It is close to the restaurant ✓J	1RM Read from map 1J Justification / Reason (2)	MP2
2.2.2	Shop 218 ✓RM It has the biggest space available ✓J	1RM Read from map 1J Justification / Opinion (2)	MP2
2.2.3	Shop 255 / Bandit Brothers ✓✓RM	2RM Answer (2)	MP2
2.2.4	Go straight. Turn left at Vodacom (Shop 230) ✓M Follow the corridor until you reach Magnolia Flowers Turn right after Magnolia Flowers (Shop 215) ✓M Turn right, go straight until you reach shop 205 at the end of the corridor on your right (Chops & T-Bones)	1M Left at 230 1M Right at 215 (2)	MP2
2.2.5	Speed = <u>distance</u> Time Speed = <u>27 metres</u> 25 min x 60 ✓C Speed = <u>27 metres</u> 1 500 sec ✓S Speed = 0,018 m/s ✓A	 1 C Multiply minutes by 60 1S 1 500 sec 1A Answer (3)	M3

QUESTION 3 [36]			
Ques	**Solution**	**Explanation**	**Level**
3.1.1a	N11 ✓✓RM	2RM Reading from map (2)	MP2
3.1.1b	Groblersdal ✓RM Middelburg ✓RM Ermelo ✓RM	3RM Reading from map (3)	MP2
3.1.2a	Measure the distance that a segment on the bar scales represents if each segment represents 25 *km*. This measurement tells the relationship between the measured lengths and the actual distance. ✓✓✓J	3J explanation (3)	MP4
3.1.2b	0,9 cm = 25 km ✓MA ✓MA Distance = $\frac{12,5}{0,9} \times 25km$ ✓M = 347,2 *km* ✓A	1MA Correct scale measurement 1MA Fraction with correct values 1M Multiply by 25 1A Answer **Accept 0,8 cm and answer 390,63 km** (4)	M3
3.1.3a	T = $\frac{d}{s}$ ✓F = $\frac{347,2km}{90km/h}$ ✓SF = 3,857777… hours ≈ 3,86 hours ✓CA Number of stops = $\frac{3,86hrs}{1,5hrs}$ ✓MA = 2,573333… ≈ 3 stops ✓A	1F Formula 1SF Substitution 1CA Answer 1MA Division 1A Answer **CA from 3.1.3** (5)	M3

Ques	**Solution**	**Explanation**	**Level**
3.1.3b	3×20 minutes = 60 minutes = 1 hour ✓C Travelling time = 3,86 hours + 1 hour ✓MA = 4,86 hours ✓CA Time = 4 hours and $\frac{86}{100} \times 60$ = 51,6 minutes ✓C Arrival time = 07:00 + 4:52 = 11:52 ✓CA	1C Conversion 1MA Addition 1CA Answer 1C Conversion 1CA Answer (5)	M4
3.2.1	Five number summary: Minimum value 90 ✓A Quartile 1 125 ✓A Median 150 ✓A Quartile 3 190 ✓A Maximum value 220 ✓A	5A Correct concept and value (5)	D2
3.2.2	Between 90 and 125 ✓✓RG	2RG Correct values (2)	D2
3.2.3	50% ✓✓RG	2RG Reading from graph (2)	D2
3.2.4	Number of days = $\frac{50}{100} \times 160$ ✓MA = 80 days ✓A	1MA Multiplying 1A Answer **Answer only full marks** (2)	D2
3.2.5	Interquartile range = Q3 – Q1 ✓MA = 190 – 125 ✓M = 65 ✓CA	1MA Concept of range 1M Subtraction 1CA Answer (3)	D2

QUESTION 4 [42]			
Ques	**Solution**	**Explanation**	**Level**
4.1.1a	36 – (6 + 25) = 36 – 31 = 5 ✓ M = 5/36 x 100% = 13,888…. % ✓A = 10 % ✓R	1M Calculating 5 1 MA correct fraction 1A Multiply by 100 1R Rounding 10% (4)	P2
4.1.1b	More likely ✓MA More singers are competing ✓J **OR** 25/36 x 100 = 54% ✓MA Bigger percentage are competing ✓J	1 MA More likely 1J Justification / Opinion (2)	P3
4.1.2a	Total guests = (86 x 2) + 102 ✓MA = 172 + 102 = 274 guests ✓A	1MA Multiply 86 x 2 1M Answer (2)	D2
4.1.2b	R100 x 172 = R17 200 ✓A R180 x 86 = R15 480 R17 200 – R15 480 ✓MA = R1 720 ✓A	1A Calculating cost per person 1MA Calculating cost per couple 1MA Subtracting cost per couple 1A Answer (4)	F3
4.1.2c	(R180 x 86) + (R100 x 102) ✓MA ✓MA = R15 480 + R10 200 = R25 680 ✓A	1MA Multiply 1MA Multiply 1A Answer (3)	F3

Ques	**Solution**	**Explanation**	Level
4.1.3	Interest = $\frac{6,5\%}{2}$ Interest = 3,25% or 0,0325 or 1,0325 ✓A R25 680 x 3,25% = R834,60 R25 680 + R834,60 = R26 514,60 ✓A R26 514,60 x 3,25% = R861,7245 R26 514,60 + R861,7245 = R27 376,3245 ✓A R27 376,3245 x 3,25% = R889,730546 R27 376,3245 + R889,73… = R28 266,05505 ✓A R28 266,05505 x 3,25% = R918,646789 R28 266,05505 + R918,646…= R29 184,70 ✓A	1A Bi-annual interest 1A Answer 1A Answer 1A Answer 1A Answer (5)	F4
4.1.4	Value in \$ = $\frac{R29\,200}{R15{,}2434}$ ✓MA = \$ 1915,583… = \$ 1915,58 ✓A Value in € = \$ 1915,58 × € 0,88814 ✓MA = € 1688,3922… = €1688,39 ✓A	1MA Division by correct values 1A Answer 1MA Multiplication by correct values 1A Answer **NP for rounding** (4)	F4
4.2.1a	Weight 3rd percentile ✓RG Height 25th percentile ✓RG	2RG Reading from graph (2)	D3
4.2.1b	Mid-parental height = $\frac{\text{Father's height+Mother's height} - 5}{2}$ = $\frac{70+64-5}{2}$ ✓SF = 64,5 inches ✓A 64,5 inches ÷ 0,3937 = 163,83 cm ✓C 163,83 cm ÷ 100 = 1,6383 m ≈ 1,64 m ✓CR	1SF Substitution 1A Answer 1C Conversion to cm 1CR Conversion to m and rounding (4)	M3

Ques	**Solution**	**Explanation**	Level
4.2.2a	62,5 pounds ✓RG 1,58 cm ✓RG	2RG Reading from graph (2)	D2
4.2.2b	BMI = $\frac{\text{weight in kg}}{(\text{height in m})^2}$ = $\frac{46\text{ kg}}{(1{,}58\text{ m})^2}$ ✓✓SF = 18,4765… kg/m ✓CA = 18 kg/m ✓R	2SF Numerator and Denominator 1CA Answer 1R Rounding (4)	M3
4.2.3	Malnutrition ✓A Illness ✓A	2A Two reasons (2)	D2
4.3.1	The schools within a 20km radius from Cape Town would include only city schools. ✓✓O	2O Opinion (2)	D4
4.3.2	To be representative, the survey should include schools from small towns and rural schools. ✓✓O	2O Opinion (2)	D4

TOTAL: 150

Vr	**Oplossing**	**Verduideliking**	Vlak
4.2.2a	62,5 pond ✓RG 1,58 cm ✓RG	2RG Lees vanaf grafiek (2)	D2
Vr	**Oplossing**	**Verduideliking**	Vlak
4.2.2b	LMI = $\frac{\text{Massa in kg}}{(\text{Lengte in m})^2}$ = $\frac{46\text{ kg}}{(1{,}58\text{ m})^2}$ ✓✓SF = 18,4765… kg/m ✓CA = 18 kg/m ✓R	2SF Noemer en Teller 1CA Antwoord 1R Afronding (4)	M3
4.2.3	Wanvoeding ✓A Siekte ✓A	2A Twee redes (2)	D2
4.3.a	Die skole binne 'n 20 km radius vanaf Kaapstad sluit slegs stadskole in. ✓✓O	2O Opinie (2)	D4
4.3.b	Om verteenwoordigend te wees, moet die steekproef skole van klein dorpies en die platteland insluit. ✓✓O	2O Opinie (2)	D4

TOTAAL: 150

Vr	Oplossing	Verduideliking	Vlak
4.1.3	Rente $= \frac{6,5\%}{2}$ Rente = 3,25% of 0,0325 of 1,0325 ✓A R25 680 x 3,25% = R834,60 R25 680 + R834,60 = R26 514,60 ✓A R26 514,60 x 3,25% = R861,7245 R26 514,60 + R861,7245 = R27 376,3245 ✓A R27 376,3245 x 3,25% = R889,7305463 R27 376,3245 + R889,73… = R28 266,05505 ✓A R28 266,05505 x 3,25% = R918,646789 R28 266,05505 + R918,646…= R29 184,70 ✓A	1A Bereken rentekoers 1A Antwoord na 6 mde 1A Antwoord na 1 jr. 1A Antwoord na 18 mde 1A Antwoord na 2 jr (5)	F3
4.1.4	Waarde in $ = $\frac{R29\,200}{R15,2434}$ ✓MA = $ 1915,583… = $ 1915,58 ✓A Waarde in € = $ 1915,58 × € 0,88814 ✓MA = € 1688,3922… = €1688,39 ✓A	1MA Deel met korrekte waardes 1A Antwoord 1MA Maal met korrekte waardes 1A Antwoord **NP for afronding** (4)	F3
4.2.1a	Massa 3de persentiel ✓RG Lengte 25ste persentiel ✓RG	2RG Lees vanaf grafiek (2)	D3
4.2.1b	Middel-ouerlike lengte $= \frac{\text{Paselengte} + \text{Maselengte} - 5}{2}$ $= \frac{70 + 64 - 5}{2}$ ✓SF = 64,5 duim ✓A 64,5 duim ÷ 0,3937 = 163,83 cm ✓C 163,83 cm ÷ 100 = 1,6383 m ≈ 1,64 m ✓CR	1SF Vervanging 1A Antwoord 1C Herleiding na cm 1CR Herleiding na m en afronding (4)	M3

VRAAG 4 [42]			
Vr	**Oplossing**	**Verduideliking**	**Vlak**
4.1.1a	36 – (6 + 25) = 36 – 31 = 5 ✓M = 5 x 100 36 = 13,888…. % ✓A = 10 % ✓ R	1M Bereken 5 1 MA Korrekte breuk 1M Maal met 100 1R Afronding 10% (4)	P2
4.1.1b	Meer waarskynlik ✓MA Meer sangers neem deel ✓ J **OF** 25 x 100 = 54% ✓ MA 36 'n 'n Groter persentasie neem deel ✓J	1 MA Meer waarsynlik 1J Regverdiging / Opinie (2)	P3
4.1.2a	Totale gaste = (86 x 2) + 102 ✓MA = 172 + 102 = 274 gaste ✓A	1MA Maal 86 x 2 1A Antwoord (2)	D2
4.1.2b	R100 x 172 = R17 200 ✓A R180 x 86 = R15 480 R17 200 – R15 480 ✓ MA = R1 720 ✓ A	1A Bereken koste per persoon 1MA Bereken koste per paartjie 1MA Trek koste per paar af 1A Antwoord (4)	F3
4.1.2c	(R180 x 86) ✓ + (R100 x 102) ✓ ✓MA ✓MA = R15 480 + R10 200 = R25 680 ✓ A	1MA Maal 1MA Maal 1A Antwoord (3)	F3

Vr	Oplossing	Verduideliking	Vlak
3.1.3b	3 × 20 minute = 60 minute = 1 uur ✓C Reis tyd = 3,86 ure + 1 uur ✓MA = 4,86 ure ✓CA Tyd = 4 ure en $\frac{86}{100} \times 60$ = 51,6 minute ✓C Aankoms tyd = 07:00 + 4:52 = 11:52 ✓CA	1C Herleiding 1MA Optel 1CA Antwoord 1C Herleiding 1CA Antwoord (5)	M3
3.2.1	Vyf-getal opsomming: Minimum waarde 90 ✓A Kwartiel 1 125 ✓A Mediaan 150 ✓A Kwartiel 3 190 ✓A Maksimum waarde 220 ✓A	5A Korrekte konsep en waarde (5)	D2
3.2.2	Tussen 90 en 125 ✓✓RG	2RG Korrekte waardes (2)	D2
3.2.3	50% ✓✓RG	2RG Lees vanaf grafiek (2)	D2
3.2.4	Aantal dae = $\frac{50}{100} \times 160$ ✓MA = 80 dae ✓A	1MA Vermenigvuldig 1A Antwoord **Slegs antwoord volpunte** (2)	D2
3.2.5	Interkwartiele omvang = K3 – K1 ✓MA = 190 – 125 ✓M = 65 ✓CA	1MA Konsep van omvang 1M Aftrek 1CA Antwoord (3)	D2

VRAAG 3 [36]			
Vr	**Oplossing**	**Verduideliking**	**Vlak**
3.1.1a	N11 ✓✓RM	2RM Lees vanaf kaart (2)	MP2
3.1.1b	Groblersdal ✓RM Middelburg ✓RM Ermelo ✓RM	3RM Lees vanaf kart (3)	MP2
3.1.2a	Meet die afstand wat 'n gedeelte van die skaal voorstel indien elke segment 25 *km* voorstel. Hierdie afmeting gee die verhouding tussen die gemete lengte en die werklike afstand. ✓✓✓J	3J Verduideliking (3)	MP2
3.1.2b	0,9 cm = 25 km ✓MA ✓MA Afstand = $\frac{12,5}{0,9} \times 25 km$ ✓M = 347,2 *km* ✓A	1MA Korrekte skaal afmeting 1MA Breuk met korrekte waardes 1M Maal met 25 1A Antwoord **Aanvaar 0,8 cm en antwoord 390,63 km** (4)	M3
3.1.3a	Tyd = $\frac{afst.}{spoed}$ ✓F = $\frac{347,2 km}{90 km/h}$ ✓SF = 3,857777… ure ≈ 3,86 ure ✓CA Aantal stoppe = $\frac{3,86 \text{ ure}}{1,5 \text{ ure}}$ ✓MA = 2,573333… ≈ 3 stoppe ✓A	1F Formule 1SF Vervanging 1CA Antwoord 1MA Deling 1A Antwoord **CA van 3.1.3** (5)	M3

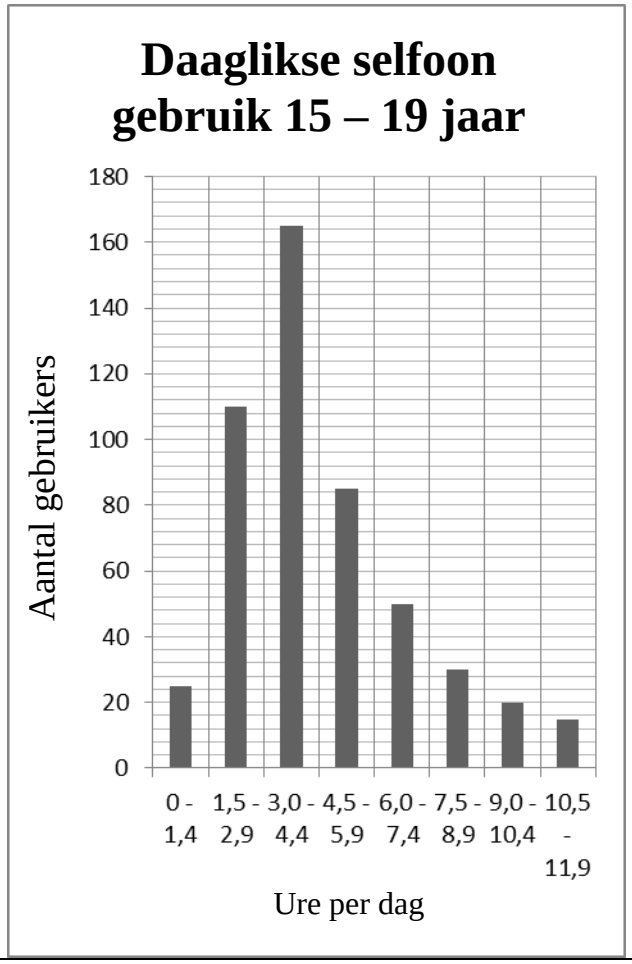
2.2.1	Winkel 250 ✓ RM Dit is in die binnehof ✓ J **OF** Winkel 245 ✓ RM Dit is sentraal aan al die winkels ✓ J **OF** Winkel 238 – 244 ✓ RM Dit is naby die ingang ✓ J **OF** Winkel 260 ✓ RM Dit is naby die restaurant ✓ J	1RM Lees vanaf kaart 1J Regverdiging / Rede (2)	MP4
2.2.2	Winkel 218 ✓ RM Dit het die grootste spasie beskikbaar ✓ J	1RM Lees vanaf kaart 1J Regverdiging / Rede (2)	MP2
2.2.3	Winkel 255 / Bandit Brothers ✓✓ RM	2RM Antwoord (2)	MP2
2.2.4	Loop reguit aan. Draai links by Vodacom (Winkel 230) ✓M Volg die gang totdat jy Magnolia Flowers bereik Draai regs na Magnolia Flowers (Winkel 215) ✓M Draai regs, loop reguit totdat jy winkel 205 aan die einde van die gang kry op jou regterkant (Chops & T-Bones)	1M links by 230 1M regs by 215 (2)	MP2
2.2.5	Spoed = <u>afstand</u> tyd Spoed = <u>27 meter</u> 25 min x 60 ✓ Spoed = <u>27 meter</u> 1 500 sek ✓ Spoed = 0,018 m/s ✓	 1 M Maal minute met 60 1A 1 500 sek 1A Antwoord (3)	M3

VRAAG 2 [25]			
Vr	**Oplossing**	**Verduideliking**	**Vlak**
2.1.1	Volume = ½*bh* × *dikte* = ½ × 3cm× 2,7cm × 1,5 cm ✓SF = 6,075 cm^3 ≈ 6,1 cm^3 ✓A✓U	1SF Vervanging 1A Antwoord 1U Eenheid **NP vir afronding** (3)	M2
2.1.2	Aantal aarbei sjokolade wat kan pas = Lengte van prisma ÷ Breedte van sjokolade = 21 cm ÷ 1,5 cm ✓M ✓MA = 14 sjokolade ✓A	1M Deling 1MA Gebruik korrekte waardes 1A Antwoord (3)	M2
2.1.3	Volume van silindriese sjokolade = $\pi r^2 \times h$ = 3,142 ×(1,5 cm)^2 ×1,5 cm ✓SF = 3,142 ×2,25 cm^2×1,5 = 10,6 cm^3 ✓A Volume van boks nie gevul = 81 cm^3 – 6 × 10,60 cm^3 ✓MA = 17,4 cm^3 ✓A	1SF Vervanging 1A Antwoord 1MA Trek 6 × kapasiteit af 1A Antwoord (4)	M3
2.1.4	Koste van 8 *kg* in rand = R14,26 ×$723,70 ✓MA = R10 319,962 ≈ R10 319,96 ✓A Koste van 1 *kg* sjokolade = $\frac{R10\ 319,96}{8kg}$ ✓MA = R1 289,995 ≈ R1 290 ✓AR	1MA Vermenigvuldiging 1A Antwoord 1MA Breuk met korrekte waardes 1AR Antwoord en afronding (4)	F3

Vr	Oplossing	Verduideliking	Vlak
1.3.1	Diskrete data ✓A Alle antwoorde is heelgetalle ✓J	1A Antwoord 1J Regverdiging (2)	D2
1.3.2	Totale aantal eksemplaar vuurhoutjieboksies = 1 + 3 + 4 + 2 + 3 + 5 + 3 + 3 + 1 ✓MA = 25 ✓A	1MA Optel van korrekte waardes 1A Antwoord (2)	D2
1.3.3	Persentasie van eksemplaar minder as 50 vuurhoutjies $= \frac{10}{25} \times 100\%$ ✓M ✓MA = 40% ✓A	1MA Breuk met korrekte waardes 1M Maal met 100 1A Antwoord (3)	D2
1.3.4	Minimum = 46 vuurhoutjies ✓A Maksimum = 54 vuurhoutjies ✓A	1A Minimum waarde 1A Maksimum waarde (2)	D2
1.3.5	Gemiddeld = $\frac{46 + 47 + \cdots + 53 + 54}{25}$ ✓MA $= \frac{1251}{25}$ ✓MA = 50,04 ✓A	1MA Optel van al die waardes 1MA Deel met 25 1A Antwoord (3)	D2
1.3.6	Om die mediaan te bereken, moet Mnr. Ismael eers die stel data in stygende volgorde rangskik en dan kan hy die middel-waarde find. ✓✓J	2J Regverdiging (2)	D4

Vr	Oplossing	Verduideliking	Vlak
1.2.2b	Aantal fakse tussen 08:00 en 20:00 gestuur = 25% × 125 = 31,25 ≈ 32 fakse ✓A Aantal fakse na 20:00 gestuur = 125 – 32 = 93 fakse ✓A Afslag = 5% × (93 × R1,20) ✓MA $= \frac{5}{100} \times R111{,}60$ = R5,58 ✓A Renewtel totale koste = Totale oproepkoste + (Aantal fakse voor 20:00 × R1,20) + (Koste van fakse voor afslag - afslag) = R440 + (32 × R1,20) + (R111,60 – R5,58) ✓M = R440 + R38,00 + R106,02 = R584,42 ✓CA	1A Aantal fakse voor 20:00 1A Aantal fakse na 20:00 1MA Bereken afslag 1A Antwoord 1M Bereken en tel korrekte waardes op 1CA Antwoord **CA van Vr. 1.2.1** (6)	F4
1.2.3	Mnr. Ismael moet besluit om by Renewtel aan te sluit aangesien hul algemene koste die laagste is met betrekking tot oproepkostes asook totale koste insluitend fakse gestuur. ✓✓O	2O Opinie van keuse **Aanvaar enige soortgelyke opinie** (2)	F4

Vr	Oplossing	Verduideliking	Vlak
1.2.1a	Tellicom: Totale koste = R250 + R0,80 ×(Aantal minute – 200) + R1,10 × Aantal minute per faks ✓F Renewtel: Totale koste = R350 + R0,90 ×(Aantal minute – 400) + R1,20 × Aantal minute per faks ✓F	1F Formule vir Tellicom 1F Formule vir Renewtel (2)	F3
1.2.1b	Tellicom: Totale koste= R250 + R0,80 × (500 – 200) ✓SF = R250 + R240 = R490 ✓CA Renewtel: Totale koste= R350 + R0,90 × (500 – 400) ✓SF = R350 + R90 = R440 ✓CA Mnr. Ismael se bewering is korrek. ✓J	1SF Vervanging 1CA Antwoord 1SF Vervanging 1CA Antwoord 1J Regverdiging (5)	F3
1.2.2a	Totale duur van fakse = Aantal fakse × Minute per faks = 125 × 2,5 minute = 312,5 minute ✓A Tellicom totale koste = Koste van oproep + R1,10 × Aantal minute = R490 + R1,10 × 312,5 minute ✓M = R490 + R343,75 =R833,75 ✓CA	1A Totale aantal minute 1M Gebruik korrekte formule 1CA Antwoord **CA van Vr.1.2.1b** (3)	F3

1.1.3		1MA Stawe raak nie 4A Vir elke 2 stawe korrek (totaal van 1 punt vir elke twee korrekte stawe) **Aanvaar indien histogram geteken** (5)	F3
1.1.4	Persentasie van groep wat selfone tussen 10,5 en 11,9 ure gebruik $= \frac{15}{500} \times 100\%$ ✓ MA = 3% ✓A 3% is 'n baie klein gedeelte van die hele groep wat beteken dat die kommentaar van die koerant wat sê dat "baie Suid-Afrikaanse selfoon gebruikers in hierdie ouderdomsgroep gebruik hul selfone vir meer as 10,5 ure per dag" verkeerd is. ✓✓O **OR** Enige ander geldige gevolgtrekking	1MA Maal met 100 1A Antwoord 2O Opinie (4)	F4

GAUTENG DEPARTEMENT VAN ONDERWYS
VOORBEREIDENDE EKSAMEN

WISKUNDIGE GELETTERDHEID
(Tweede Vraestel)

MEMORANDUM

SLEUTEL TOT ONDERWERP SIMBOOL:

F = Finansies; M = Meting; MP = Kaarte, planne en ander voorstellings
DH = Data hantering; P = Waarskynlikheid

VRAAG 1 [47]

Vr	Oplossing	Verduideliking	Vlak
1.1.1	**A** = 500 – (25+110+85+50+30+20+15) ✓MA = 500 – 335 = 165 ✓A	1MA Trek alle waardes af 1A Antwoord (2)	F2
1.1.2	Persentasie van totale aantal gebruikers ✓MA $= \frac{93+85+165+85+203+98}{372+500+596} \times 100\%$ ✓M ✓MA $= \frac{729}{1468} \times 100\%$ = 49,6594…% ≈ 49,7% ✓A	1MA Noemer korrekte waardes bymekaar getel 1MA Teller korrekte waardes bymekaar getel 1M Maal met 100 1A Antwoord (4)	F3

GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

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2016

MEMORANDUM

WISKUNDIGE GELETTERDHEID V2 (10602)

13 bladsye

Kodes	Verduideliking
M	Metode
MA	Metode met Akkuraatheid
CA	Konstante Akkuraatheid
A	Akkuraatheid
C	Herleiding
D	Definieer
J	Regverdiging/Rede/Verduideliking
S	Vereenvoudiging
RT/RD/RG	Lees vanaf ’n tabel OF ’n grafiek OF ’n diagram OF ’n kaart OF ’n plan
F	Kies die korrekte formule
SF	Vervang in ’n formule
O	Opinie
P	Straf, bv. geen eenhede, verkeerde afronding ens.
R	Afronding
NP	Geen straf vir afronding OF eenhede uitgelaat