basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NASIONALE SENIOR SERTIFIKAAT

GRAAD 10

WISKUNDE V1

NOVEMBER 2017

PUNTE: 100

TYD: 2 uur

Hierdie vraestel bestaan uit 7 bladsye.

* X M A T A 1 *

EASTERN CAPE

INSTRUKSIES EN INLIGTING

Lees die volgende instruksies aandagtig deur voordat jy die vrae beantwoord.

1. Hierdie vraestel bestaan uit 7 vrae.
2. Beantwoord AL die vrae.
3. Dui ALLE berekeninge, diagramme, grafieke, ensovoorts wat jy gebruik het om die antwoorde te bepaal, duidelik aan.
4. Slegs antwoorde sal NIE noodwendig volpunte verdien NIE.
5. Jy mag 'n goedgekeurde wetenskaplike sakrekenaar (nieprogrammeerbaar en niegrafies) gebruik, tensy anders aangedui.
6. Rond antwoorde tot TWEE desimale plekke af, tensy anders aangedui.
7. Diagramme is NIE noodwendig volgens skaal geteken NIE.
8. Nommer die antwoorde korrek volgens die nommeringstelsel wat in hierdie vraestel gebruik is.
9. Skryf netjies en leesbaar.

VRAAG 1

1.1 Gegee: $q = \sqrt{b^2 - 4ac}$

1.1.1 Bepaal die waarde van q as $a = 2$, $b = -1$ en $c = -4$.
Laat jou antwoord in eenvoudigste wortelvorm. (2)

1.1.2 Noem of q rasioneel of irrasioneel is. (1)

1.1.3 Tussen watter TWEE opeenvolgende heelgetalle lê q? (1)

1.2 Faktoriseer die volgende uitdrukkings volledig:

1.2.1 $t^2(r-s)-r+s$ (3)

1.2.2 $\dfrac{x^3+1}{x^2-x+1}$ (2)

1.3 Vereenvoudig die volgende volledig:

1.3.1 $(2y+3)(7y^2-6y-8)$ (2)

1.3.2 $\dfrac{3}{x^2-9}+\dfrac{2}{(x-3)^2}$ (3)

1.3.3 $\dfrac{3^t-3^{t-2}}{2.3^t-3^t}$ (3)
[17]

VRAAG 2

2.1 Gegee: $4-2x<16$ waar $x \in R$

2.1.1 Los die ongelykheid op. (2)

2.1.2 Stel gevolglik jou antwoord op VRAAG 2.1.1 op 'n getallelyn voor. (1)

2.2 Los gelyktydig vir x en y op:

$$-2x-y=10 \text{ en } 3x-4y=-4$$ (4)

2.3 Los op vir x:

2.3.1 $\dfrac{x(x-5)}{6}-1=0$ (3)

2.3.2 $c=\sqrt{a+2x}$ (2)

2.4 Tabelo is tans vier keer so oud soos sy dogter, Linda. Tabelo sal ses jaar van nou af drie keer so oud soos Linda wees.

Bereken Linda se ouderdom tans. (4)
[16]

VRAAG 3

3.1 Beskou die lineêre ry: 5 ; 8 ; 11 ; b ; 17 ; …

3.1.1 Skryf die waarde van b neer. (2)

3.1.2 Bepaal die n^{de} term van die ry. (2)

3.1.3 Bereken die waarde van die 15^{de} term van die ry. (2)

3.1.4 Watter term in die ry is aan 83 gelyk? (2)

3.2 Beskou die getalpatroon hieronder wat geskep is deur die getalle van die ry 2 ; 6 ; 10 ; 14 ; 18 ; … te gebruik.

				2				
			6		10			
		14		18		22		
	26		30		34		38	
42		…		…		…		…

3.2.1 Bereken die som van die getalle in die 8^{ste} ry. (3)

3.2.2 Bepaal die gemiddeld van die getalle in die 20^{ste} ry. (2)

[13]

VRAAG 4

4.1 Mev. Grey het sewe jaar gelede besluit om R18 000 in 'n bankrekening te belê wat eenvoudige rente teen 4,5% p.j. betaal het.

4.1.1 Bereken hoeveel rente mev. Grey in die sewe jaar verdien het. (2)

4.1.2 Mev. Grey wil 'n televisiestel koop wat tans R27 660,00 kos. Indien die gemiddelde inflasiekoers die laaste 5 jaar 6,7% p.j. was, bereken wat die televisiestel 5 jaar gelede sou gekos het. (3)

4.1.3 Teen watter eenvoudige rentekoers moes mev. Grey 7 jaar gelede haar geld belê het as sy beplan om nou die televisiestel te koop deur slegs haar oorspronklike belegging van R18 000 en die rente verdien in die laaste 7 jaar te gebruik? (3)

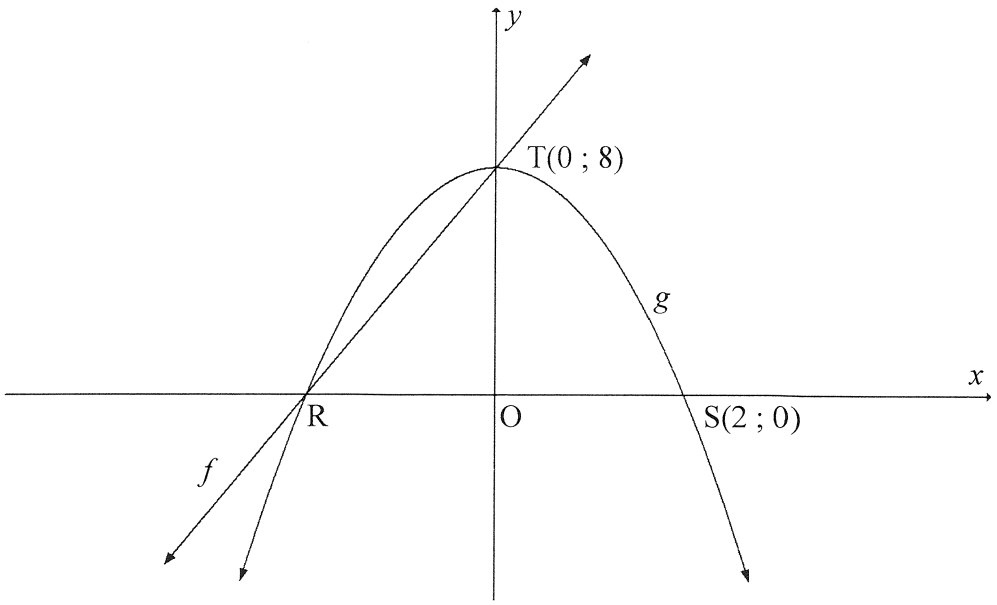
4.2 Die wisselkoers tussen die Amerikaanse dollar en die Suid-Afrikaanse rand op 'n sekere dag is \$1 = R12,91. Terselfdertyd is die wisselkoers tussen die Britse pond en die Suid-Afrikaanse rand £1 = R16,52.

Bereken die wisselkoers tussen die Britse pond en die Amerikaanse dollar op daardie dag. (2)

[10]

VRAAG 5

Die diagram toon die grafieke van $g(x) = ax^2 + q$ en $f(x) = mx + c$.
R en S(2 ; 0) is die x-afsnitte van g en T(0 ; 8) is die y-afsnit van g.
Grafiek f gaan deur R en T.



5.1 Skryf die waardeversameling van g neer. (1)

5.2 Skryf die x-koördinaat van R neer. (1)

5.3 Bereken die waardes van a en q. (3)

5.4 Bepaal die vergelyking van f. (3)

5.5 Gebruik die grafieke om die waarde(s) van x te bepaal waarvoor:

5.5.1 $f(x) = g(x)$ (2)

5.5.2 $x \,.\, g(x) \leq 0$ (3)

5.6 Die grafiek h word verkry wanneer g op die lyn $y = 0$ gereflekteer word.
Skryf die vergelyking van h in die vorm $h(x) = px^2 + k$ neer. (2)
[15]

VRAAG 6

6.1 Die funksie $p(x) = k^x + q$ word deur die volgende eienskappe beskryf:

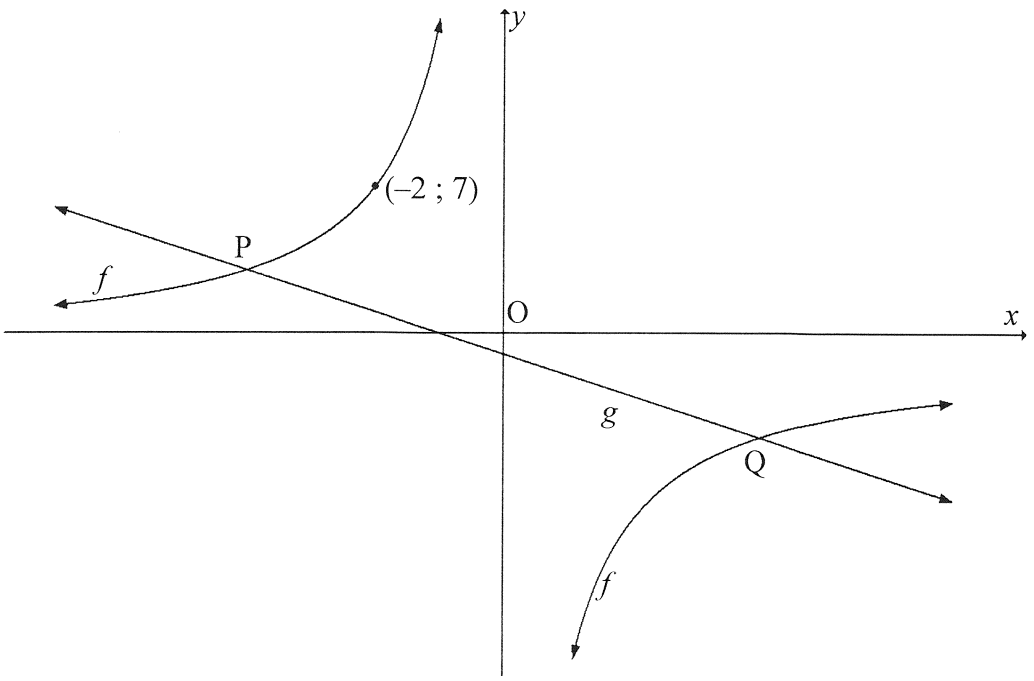
- $k > 0; k \neq 1$
- x-afsnit by (2 ; 0)
- Die horisontale asimptoot is $y = -9$

6.1.1 Skryf die waardeversameling van p neer. (1)

6.1.2 Bepaal die vergelyking van p. (3)

6.1.3 Skets die grafiek van p. Toon duidelik die snypunte van die asse en die asimptoot. (3)

6.2 Die skets hieronder toon die grafieke van $f(x) = \frac{k}{x} + w$ en $g(x) = -x - 1$.
Die grafiek g is 'n simmetrie-as van f. Die grafieke f en g sny by P en Q.



6.2.1 Skryf die waarde van w neer. (1)

6.2.2 Die punt (–2 ; 7) lê op f. Bereken die waarde van k. (2)

6.2.3 Bereken die x-koördinate van P en Q. (4)

6.2.4 Skryf die waardes van x neer waarvoor $\frac{-16}{x} > -x$. (2)
[16]

VRAAG 7

7.1 Twee gebeurtenisse, A and B, is komplementêr en vul die hele steekproefruimte. Net so $P(A') = 0,35$.

7.1.1 Voltooi die stelling: $P(A) + P(B) = ...$ (1)

7.1.2 Skryf die waarde van $P(A \text{ en } B)$ neer. (1)

7.1.3 Skryf die waarde van $P(B)$ neer. (1)

7.2 'n Opname is onder 150 leerders in graad 10 by 'n sekere skool gedoen om vas te stel hoeveel van hulle die volgende toestelle besit het: slimfoon (S) of tablet (T).

Die uitslag was soos volg:

- 8 leerders het nie 'n slimfoon óf 'n tablet besit nie.
- 20 leerders het beide 'n slimfoon en 'n tablet besit.
- 48 leerders het 'n tablet besit.
- x leerders het 'n slimfoon besit.

7.2.1 Stel die inligting hierbo in 'n Venn-diagram voor. (4)

7.2.2 Hoeveel leerders het slegs 'n slimfoon besit? (3)

7.2.3 Bereken die waarskynlikheid dat 'n leerder wat ewekansig uit hierdie groep gekies word:

(a) Slegs 'n slimfoon besit het (1)

(b) Op die meeste een tipe toestel besit het (2)
[13]

TOTAAL: 100

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NATIONAL SENIOR CERTIFICATE/ *NASIONALE SENIOR SERTIFIKAAT*

GRADE/*GRAAD* 10

MATHEMATICS P1/*WISKUNDE V1*

NOVEMBER 2017

MARKING GUIDELINES/*NASIENRIGLYNE*

MARKS/*PUNTE*: 100

These marking guidelines consist of 12 pages.
Hierdie nasienriglyne bestaan uit 12 bladsye.

2017-11-05

Please turn over/*Blaai om asseblief*

NOTE:
- If a candidate answered a question TWICE, mark only the FIRST attempt.
- If a candidate crossed out an answer and did not redo it, mark the crossed-out answer.
- Consistent accuracy applies to ALL aspects of the marking guidelines.
- Assuming values/answers in order to solve a problem is unacceptable.

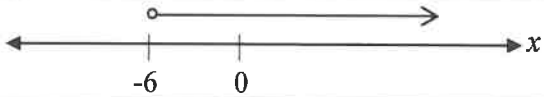
LET WEL:
- *As 'n kandidaat 'n vraag TWEE keer beantwoord het, sien slegs die EERSTE poging na.*
- *As 'n kandidaat 'n antwoord deurgehaal en nie oorgedoen het nie, sien die deurgehaalde antwoord na.*
- *Volgehoue akkuraatheid is op ALLE aspekte van die nasienriglyne van toepassing.*
- *Dit is onaanvaarbaar dat waardes/antwoorde veronderstel word om 'n probleem op te los.*

QUESTION/*VRAAG* 1

1.1.1	$q = \sqrt{b^2 - 4ac}$ $q = \sqrt{(-1)^2 - 4(2 \times -4)}$ $q = \sqrt{33}$	✓correct subst./*korrek verv.* ✓answ/*antw* (2)
1.1.2	Irrational/*Irrasionaal*	✓answ/*antw* (1)
1.1.3	5 and/*en* 6	✓answ/*antw* (1)
1.2.1	$t^2(r-s) - r + s$ $= t^2(r-s) - (r-s)$ $= (r-s)(t^2 - 1)$ $= (r-s)(t-1)(t+1)$	✓common factor/*gemene faktor* ✓factors/*faktore* ✓difference of two squares/*verskil van twee kwadrate* (3)
1.2.2	$\frac{x^3 + 1}{x^2 - x + 1}$ $= \frac{(x+1)(x^2 - x + 1)}{x^2 - x + 1}$ $= x + 1$	factors of numerator: ✓$(x+1)$ ✓$(x^2 - x + 1)$ (2)

1.3.1	$(2y+3)(7y^2-6y-8)$ $=14y^3-12y^2-16y+21y^2-18y-24$ $=14y^3+9y^2-34y-24$	✓multiplying brackets/*vermenigvuldig hakkies* ✓answ/*antw* (2)
1.3.2	$\frac{3}{x^2-9}+\frac{2}{(x-3)^2}$ $=\frac{3}{(x-3)(x+3)}+\frac{2}{(x-3)^2}$ $=\frac{3(x-3)+2(x+3)}{(x-3)^2(x+3)}$ $=\frac{3x-9+2x+6}{(x-3)^2(x+3)}$ $=\frac{5x-3}{(x-3)^2(x+3)}$	✓LCD/*KGN* ✓$3(x-3)+2(x+3)$ ✓answ/*antw* (3)
1.3.3	$\frac{3^t-3^{t-2}}{2.3^t-3^t}$ $=\frac{3^t(1-3^{-2})}{3^t(2-1)}$ $=\frac{1-\frac{1}{9}}{1}$ $=\frac{8}{9}$	✓factors/*faktore* ✓ simpl./*vereenv* ✓answ/*antw* (3)
		[17]

QUESTION/*VRAAG* 2

2.1.1	$4-2x<16$ $-2x<12$ $x>-6$ **OR / *OF*** $4-2x<16$ $-12<2x$ $-6<x$	✓ simpl./*vereenv* ✓ answ/*antw* (2)
2.1.2		✓ answ/*antw* (1)
2.2	$3x-4y=-4$.....(1) $-2x-y=10$.....(2) $3x-4y=-4$.....(1) $(2)\times -4: 8x+4y=-40$.....(3) $(1)+(3): 11x=-44$ $x=-4$ substitute $x=-4$ into (2) $-2(-4)-y=10$ $y=-2$	✓multipl/*maal* (2) by/*met* 4 ✓adding/*tel op* (1) & (3) ✓*x*-value/*waarde* ✓*y*-value/*waarde* (4)
	OR/*OF* $3x-4y=-4$.....(1) $-2x-y=10$.....(2) $(1)\times 2: 6x-8y=-8$..,.....(3) $(2)\times 3: -6x-3y=30$.....(4) $(3)+(4): -11y=22$ $y=-2$ substitute $y=-4$ into (2) $-2x-(-2)=10$ $2x=-8$ $x=-4$	**OR/*OF*** ✓multipl/*maal* (1) by/*met* 2 and multipl/*maal* (2) by/*met* 3 ✓adding/*tel op* (3) & (4) ✓*y*-value/*waarde* ✓*x*-value/*waarde* (4)
	OR/*OF* From(2): $y=-2x-10$.....(3) subst.(3) into (1): $3x-4(-2x-10)=-4$ $3x+8x+40=-4$ $11x=-44$ $x=-4$ subst. $x=-4$ into (3): $y=-2(-4)-10$ $y=-2$	**OR/*OF*** ✓ equation/*verg* (3) ✓ subst./*verv.* ✓*x*-value/*waarde* ✓*y*-value/*waarde* (4)

2.3.1	$\frac{x(x-5)}{6}-1=0$ $x^2-5x-6=0$ $(x-6)(x+1)=0$ $x=6$ or $x=-1$ **OR/*OF*** $\frac{x(x-5)}{6}-1=0$ $\frac{x^2-5x-6}{6}=0$ $\frac{(x-6)(x+1)}{6}=0$ $x-6=0$ or $x+1=0$ $x=6$ or $x=-1$	✓stand. form/*-vorm* ✓factors/*faktore* ✓ answ/*antw* (3) **OR/*OF*** ✓stand. form/*-vorm* ✓factors/*faktore* ✓ answ/*antw* (3)
2.3.2	$c=\sqrt{a+2x}$ $c^2=a+2x$ $2x=c^2-a$ $x=\frac{c^2-a}{2}$	✓squaring both sides/*kwadreer beide kante* ✓ answ/*antw* (2)
2.4	Let Linda's age now be *x/Laat Linda se ouderdom nou x wees* Therefore Tabelo's age is 4*x*/*Dus is Tabelo se ouderdom 4x* 6 years/*jaar* later: Linda's age will be:/ *Linda se ouderdom sal wees:* $x+6$ Tabelo's age will be:/ *Tabelo se ouderdom sal wees:*$4x+6$ $4x+6=3(x+6)$ $4x-3x=18-6$ $x=12$ Linda's age/*Linda se ouderdom*is 12 years/*jaar*	✓$4x$ ✓$x+6$ ✓equating/*verg.* ✓ answ/*antw* (4)
		[16]

QUESTION/*VRAAG* 3

3.1.1	constant difference = 3 $b = 14$	✓ constant diff/*konstante verskil* = 3 ✓ answ/*antw* (2)
3.1.2	The sequence is linear/*Hierdie ry is lineêr*: $T_n = pn + q$. $T_n = 3n + q$ $T_n = 3n + 2$	✓3n ✓2 (2)
3.1.3	$T_n = 3n + 2$ $T_{15} = 3(15) + 2$ $T_{15} = 47$	✓ subst./*verv.* ✓ answ/*antw* (2)
3.1.4	$T_n = 3n + 2$ $83 = 3n + 2$ $3n = 81$ $n = 27$	✓ $T_n = 83$ ✓ answ/*antw* (2)
3.2.1	Sum of the terms in rows/*Som van terme in ry*: 2 ; 16 ; 54 ; 128 ;……. Row/*Ry* 1: 2 x 1= 2 Row/*Ry* 2 : 2 x 8 = 16 Row/*Ry* 3 : 2 x 27 = 54 Row/*Ry* 4 : 2 x 64 = 128 . . Row/*Ry n* : $2n^3$ Row/*Ry* 8 = $2(8)^3 = 1024$ **OR/*OF*** Pattern for the first terms in rows/*Patroon van die eerste terme in rye*: 2; 6; 14 ; 26 ; … 2 ; 4(1)+2 ; 4(1)+4(2)+2 ; 4(1)+4(2)+4(3)+2 ; …. $T_8 = 4(1+2+3+4+5+6+7)+2$ $= 114$ Sum of the terms in row 8/*Som van terme in ry 8* $= 114+118+122+136+130+134+138+142$ $= 1024$	✓gen./*alg.* term ✓ subst./*verv.* ✓ answ/*antw* (3) **OR/*OF*** ✓ $T_8 = 114$ ✓sum of terms in row/*som van terme in ry* 8 ✓ answ/*antw* (3)

3.2.2	Mean in row/*Gemiddeld in ry* $20 = \frac{2(20)^3}{20} = 800$ **OR/*OF*** First term of row/*Eerste term in ry* 20: $T_{20} = 4(1+2+3+4+....+19)+2$ $= 762$ Sum of terms in row/*Som van terme in ry* 20 $= 762+766+770+...+838.$ $=16000$ $\therefore$ Mean/*Gemiddeld* $= \frac{16000}{20} = 800$	✓ subst./*verv.* ✓ answ/*antw* (2) **OR/*OF*** ✓16 000 ✓ answ/*antw* (2)
		[13]

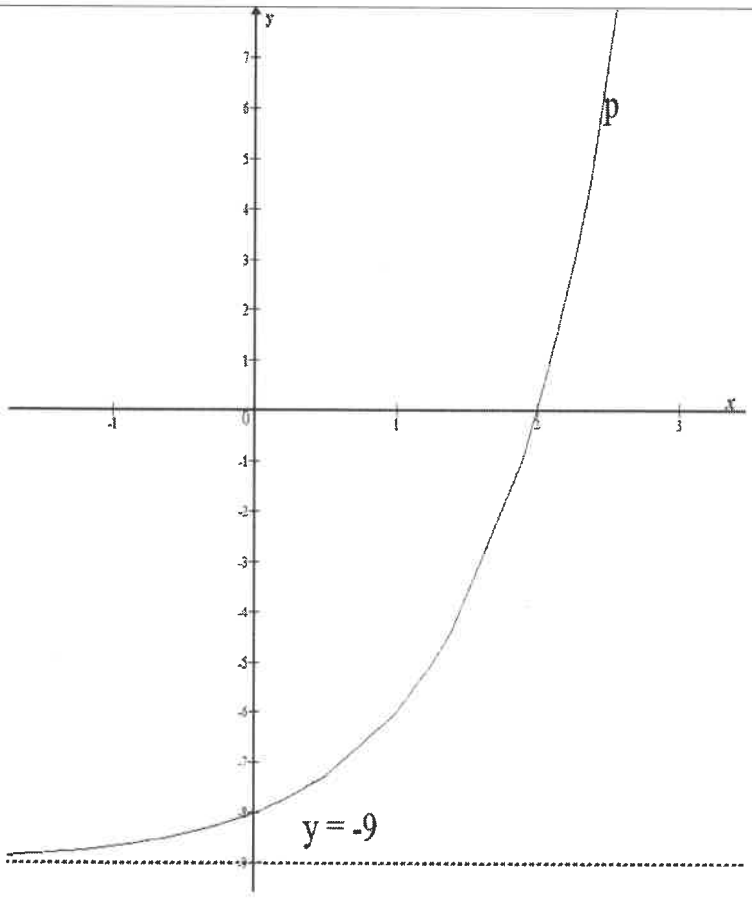
QUESTION/*VRAAG* 4

4.1.1	$A = P(1+i.n)$ $= 18000(1+0,045\times 7)$ $= R23670$ Interest/*Rente* $= 23670-18000$ $=$ R5670 **OR/*OF*** $SI = \frac{Prt}{100}$ $= \frac{18000\times 4,5\times 7}{100}$ $=$ R5670,00	✓ R23 670 ✓R5 670 (2) **OR/*OF*** ✓ subst./*verv.* ✓ answ/*antw* (2)
4.1.2	$A = P(1+i)^n$ $R27660 = P(1+0,067)^5$ $P = \frac{27660}{(1+0,067)^5}$ $P =$ R20000	✓ correct subst./*korrek verv.* in correct formula/ *korrekte formule* ✓ making P the subject/*maak P onderwerp van foemule* ✓ answ/*antw* (3)
4.1.3	$A = P(1+i.n)$ $27660 = 18000(1+i\times 7)$ $7i = \frac{27660}{18000}-1$ $i = \frac{\frac{27660}{18000}-1}{7}$ $i = 0,07666....$ Simple interest rate should have been/ *Eenvoudige rente moes wees* 7,67%	✓ correct subst./*korrek verv.* in correct formula/in *korrekte formule* ✓ making *i* the subject/*maak i onderwerp van formule* ✓ answ/*antw* as % (3)
4.2	$\frac{\text{Pound/}Pond}{\text{Dollar}} = \frac{R16,52}{R12,91}$ $\therefore £1 \approx \$1,28$ **OR/*OF*** $\frac{\text{Dollar}}{\text{Pound/}Pond} = \frac{R12,91}{R16,52}$ $\therefore$	✓proportion/*verhouding* ✓ $£1 \approx \$1,28$ (2) **OR/*OF*** ✓proportion/*verhouding* ✓ $\$1 \approx £0,78$ (2)
		[10]

QUESTION/*VRAAG* 5

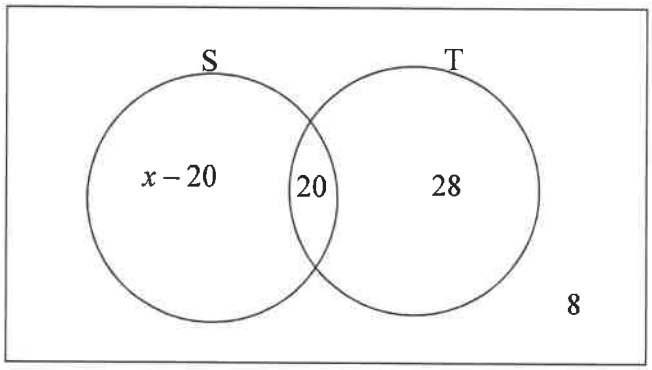
5.1	Range of/*Waardeversameling van* g : $y \leq 8$ **OR/*OF*** $y \in (-\infty ; 8]$	✓ answ/*antw* (1) **OR/*OF*** ✓ answ/*antw* (1)
5.2	The x-coordinate of R is -2	✓ answ/*antw* (1)
5.3	$g(x) = ax^2 + 8 \Rightarrow q = 8$ $g(2) = a(2)^2 + 8 = 0$ $\Rightarrow a = -2$ **OR/*OF*** $g(x) = ax^2 + 8 \Rightarrow q = 8$ $g(-2) = a(-2)^2 + 8 = 0$ $\Rightarrow a = -2$	✓$q = 8$ ✓ subst./*verv.* (2 ; 0) ✓$a = -2$ (3) **OR/*OF*** ✓$q = 8$ ✓ subst./*verv.* (–2 ; 0) ✓$a = -2$ (3)
5.4	$f(x) = mx + c \Rightarrow c = 8$ $f(-2) = -2m + 8 = 0$ $\Rightarrow m = 4$ $f(x) = 4x + 8$	✓$c = 8$ ✓$m = 4$ ✓equation / *vergelyking* (3)
5.5.1	$x = -2$ or $x = 0$	✓$x = -2$ ✓ $x = 0$ (2)
5.5.2	$x \,.\, g(x) \leq 0$ $-2 \leq x \leq 0$ or $x \geq 2$ **OR/*OF*** $x \in [-2; 0]$ or $x \in [2; \infty)$	✓✓$-2 \leq x \leq 0$ ✓$x \geq 2$ (3) **OR/*OF*** ✓✓ $[-2; 0]$ ✓ $[2; \infty)$ (3)
5.6	$h(x) = -(-2x^2 + 8)$ $h(x) = 2x^2 - 8$	✓ $h(x) = -(g(x))$ ✓$2x^2 - 8$ (2)
		[15]

QUESTION/*VRAAG* 6

6.1.1	The range/*Waardeversameling* $y > -9$ **OR/*OF*** $y \in (-9; \infty)$	✓ answ/*antw* (1) **OR/*OF*** ✓ answ/*antw* (1)
6.1.2	$p(x) = k^x + q$ $p(x) = k^x - 9$ $0 = k^2 - 9$ $k^2 = 9$ $k = \pm 3$ $k = 3$ since/omdat $k > 0$ $p(x) = 3^x - 9$	✓$q = -9$ ✓subst/*verv.* (2 ; 0) ✓$k = 3$ (3)
6.1.3		✓asymptote/*asimptoot* ✓intercepts/*afsnitte* ✓shape: increasing /*vorm: stygend* (3)

6.2.1	$w=-1$	✓ answ/*antw* (1)
6.2.2	$f(x)=\frac{k}{x}-1$ $7=\frac{k}{-2}-1$ $k=-16$	✓ subst./*verv.* (–2 ; 7) ✓ answ/*antw* (2)
6.2.3	$f(x)=g(x)$ $\frac{-16}{x}-1=-x-1$ $x^2-16=0$ $(x-4)(x+4)=0$ $x_Q=4$ or $x_P=-4$	✓equating/*verg.* ✓ simpl./*vereenv* ✓x = -4 at/*by* P ✓x = 4 at Q (4)
6.2.4	$-4<x<0$ or $x>4$ **OR/*OF*** $x\in(-4\,;0)$ or $x\in(4\,;\infty)$	✓$-4<x<0$ ✓$x>4$ **OR/*OF*** ✓ $(-4\,;0)$ ✓$(4\,;\infty)$ (2)
		[16]

QUESTION/*VRAAG* 7

7.1.1	$P(A)+P(B)=P(A \text{ or } B)$ **OR/*OF*** $P(A)+P(B)=1$ **OR/*OF*** $P(A)+P(B)=P(S)$	✓ answ/*antw* **OR /*OF*** (1) ✓ answ/*antw* **OR/*OF*** (1) ✓ answ/*antw* (1)
7.1.2	$P(A \text{ and } B)=0$	✓ answ/*antw* (1)
7.1.3	$P(B)=P(A')$ $=0{,}35$	✓ answ/*antw* (1)
7.2.1	150  	✓20 (in the intersection/*in die snyding*) ✓28 (in T only/*slegs in T*) ✓ $x-20$ (in S only/*slegs in S*) ✓8 (outside/*buite of* S or/*of* T) (4)
7.2.2	$x-20+20+28+8=150$ $x=114$ Smartphone only/*Slegs slimfoon* $=114-20$ $=94$	✓equation/*verg.* ✓ value/*waarde* of/*van x* ✓ answ/*antw* (3)
7.2.3 (a)	P(S only/*slegs*) $=\frac{94}{150}=0{,}63$	✓ answ/*antw* (1)
7.2.3 (b)	P(S or/*of* T or neither/*of geeneen*) $=\frac{94}{150}+\frac{28}{150}+\frac{8}{150}$ $=\frac{130}{150}$ $=\frac{13}{15}$ $=0{,}87$ **OR/*OF*** P(S or/*of* T or neither/*of geeneen*) $=1-\frac{20}{150}$ $=\frac{13}{15}$ $=0{,}87$	✓addition/*optel* ✓ answ/*antw* (2) **OR/*OF*** ✓complementary rule/*komplementêre reël* ✓ answ/*antw* (2)
		[13]

TOTAL/*TOTAAL*: 100

NOVEMBER 2017
GRADE 10 MATHEMATICS PAPER 1
ADDITIONAL NOTES TO MEMORANDUM

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- Consistent accuracy applies in ALL aspects of the marking memorandum.

LET WEL:

- *Indien 'n kandidaat 'n vraag TWEE keer beantwoord, sien slegs die EERSTE poging na.*
- *Volgehoue akkuraatheid is op ALLE aspekte van die memorandum van toepassing.*

ONCE A CANDIDATE HAS REACHED 2 ERRORS RELATED TO MARKS: STOP MARKING.

QUESTION/*VRAAG 1*

1.1.1	Answer only: 2/2 marks
1.1.2	CA from 1.1.1 If the candidate states irrational but not consistent with 1.1.1, then 0 marks.
1.1.3	CA from 1.1.1
1.2.1	$t^2(r-s)-r+s$ $=t^2(r-s)-(r+s)$: BD 0/3marks $t^2(r-s)-r+s$ $=t^2(r-s)+(r-s)$: CA on removing common factor 1/3marks $=(r-s)(t^2+1)$ =
1.3.2	CA on numerator according to LCD
1.3.3	No penalty for using calculator to simplify exponents

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QUESTION/*VRAAG 2*

2.1.1	$4-2x<16$ $2x<12$: BD 0/2 marks $x<6$
2.1.2	CA from 2.1.1
2.3.1	$\frac{x(x-5)}{6}-1=0$ $\frac{x^2-5x-6}{6}=0$ $\frac{(x-6)(x+1)}{6}=0$ $\frac{x-6}{6}=0$ or $\frac{x+1}{6}=0$ $x=6$ or $x=-1$ Although the answer is correct, there is a breakdown in the working. Award 2/3 marks Similarly, if the working is shown as above and the answers are $x=1$ or $x=-\frac{1}{6}$, we cannot award a CA mark for the answers. Award 2/3 marks.
2.4	• Solving by Trial and error with working shown: 4/4 marks • Answer only (no working shown) : 1/4 marks • $x+6=3(4x+6)$ shows a misunderstanding of the situation. Further, this results in $x=-\frac{12}{11}$. Award 2/4 marks

QUESTION/*VRAAG 3*

3.1.1	Answer only: 2/2 marks
3.1.2	CA only if constant difference from 3.1.1 is used.
3.1.3	CA only if 3.1.2 is linear
3.1.4	• CA only if 3.1.2 is linear • CA on answer only if positive integer solution. If negative or fraction solution, then no CA mark.
3.2.1	Answer only: 1/3 marks Accept the use of quadratic number pattern theory in obtaining first term of 8th row.
3.2.2	• CA from 3.2.1 applies for the formula in the numerator • No CA for answer if any random number is divided by 20.

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QUESTION/*VRAAG 4*

4.1.2	No marks if incorrect formula is used
4.1.3	No penalty for incorrect rounding No marks if incorrect formula is used
4.2	Penalise 1 mark for incorrect rounding. Answer only £1 ≈ \$1,28 or \$1 ≈ £0,78 : 2/2 marks

QUESTION/*VRAAG 5*

5.1	Accept $(-\infty; 8]$
5.2	Accept R(–2 ; 0). No marks for any other coordinates.
5.4	CA from 5.2 applies in calculating the value of m.
5.5.1	• CA from 5.2 • Accept as correct (–2 ; 0) and (0 ; 8) • Solution by calculation is acceptable
5.5.2	• CA from 5.2 • Accept $[-2; 0]$ or $[2; \infty)$ • No part marks awarded for $-2 \leq x \leq 0$. Either 2 marks for correct answer or 0.
5.6	• Answer only 2/2marks • Both p and k must be correct to award 2 marks. No part marks to be allocated. • CA from 5.3 only if $p > 0$ and $k < 0$.

QUESTION/*VRAAG 6*

6.1.1	Accept $(-9; \infty)$
6.1.3	• If candidates draw a straight line or a parabola through the correct intercepts, award 1/3 marks. • If only the intercepts are shown and no graph drawn, award 0/3.
6.2.2	CA on k only if $k < 0$.
6.2.3	• CA from 6.2.2 • CA on values for x only if one positive answer and one negative answer • If P and Q not specified, max 3/4 marks. • Answer only 1/4 marks
6.2.4	• CA from 6.2.3. • Accept (–4 ; 0) or (4 ; ∞) • No part marks awarded for $-4 < x < 0$. Either 2 marks for correct answer or 0.

QUESTION/*VRAAG 7*

7.2.3	• CA from 7.2.2. • No marks for probabilities that are less than 0 or greater than 1.

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