



Province of the  
**EASTERN CAPE**  
EDUCATION

**NATIONAL  
SENIOR CERTIFICATE/  
NASIONALE  
SENIOR SERTIFIKAAT**

**GRADE/GRAAD 12**

**JUNE/JUNIE 2017**

**MATHEMATICS P1/WISKUNDE V1  
MEMORANDUM**

**MARKS/PUNTE: 150**

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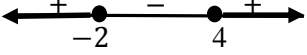
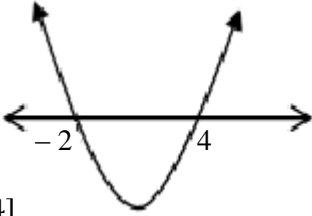
This memorandum consists of 14 pages./  
Hierdie memorandum bestaan uit 14 bladsye.

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## NOTE/LET OP:

- If a candidate answered a question TWICE, mark the FIRST attempt ONLY.  
*Indien 'n kandidaat 'n vraag TWEE keer beantwoord het, merk SLEGS die EERSTE poging.*
- Consistent accuracy(CA) applies in ALL aspects of the memorandum.  
*Volgehoue akkuraatheid geld deurgaans in ALLE aspekte van die memorandum.*
- If a candidate crossed out an attempt of a question and did not redo the question, mark the crossed-out attempt.  
*Indien 'n kandidaat 'n poging vir 'n vraag deurgetrek het en nie die vraag weer beantwoord het nie, merk die poging wat deurgetrek is.*
- The mark for substitution is awarded for substitution into the correct formula.  
*Die punt vir substitusie word toegeken vir substitusie in die korrekte formule.*

## QUESTION 1/VRAAG 1

1.1.1	$x^2 - x - 30 = 0$ $(x + 5)(x - 6) = 0$ $x + 5 = 0 \text{ or/of } x - 6 = 0$ $x = -5 \text{ or/of } x = 6$	✓✓ factors / faktore ✓ x-values / waardes (3)
1.1.2	$3x^2 + x - 1 = 0$ $x = \frac{-(1) \pm \sqrt{(1)^2 - 4(3)(-1)}}{2(3)}$ $x = \frac{-1 \pm \sqrt{13}}{6}$ $\therefore x = 0,43 \text{ or / of } x = -0,77$	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 10px;">             Penalise 1 mark for incorrect rounding off./              Penaliseer 1 punt vir verkeerde afronding.           </div> ✓ substitution / vervanging  ✓✓ x-values / waardes (3)
1.1.3	$x^2 \leq 2(x + 4)$ $x^2 - 2x - 8 \leq 0$ $(x + 2)(x - 4) \leq 0$   $\therefore -2 \leq x \leq 4 \text{ / } x \in [-2 ; 4]$	✓ factors / faktore  ✓ critical values with method kritieke waardes met metode  ✓✓ answer (accuracy) / antwoord (akkuraatheid) (4)

<p>1.1.4</p> $3x - 5\sqrt{x} = 2$ $3x - 2 = 5\sqrt{x}$ $(3x - 2)^2 = (5\sqrt{x})^2$ $9x^2 - 12x + 4 = 25x$ $9x^2 - 37x + 4 = 0$ $(9x - 1)(x - 4) = 0$ $\therefore x = \frac{1}{9} \text{ or / of } x = 4$ <p>Check : <math>3(\frac{1}{9}) - 5\sqrt{\frac{1}{9}} = 2</math>                      <math>3(4) - 5\sqrt{4} = 2</math></p> $\frac{1}{3} - \frac{5}{3} = 2$ $12 - 10 = 2$ $-\frac{4}{3} \neq 2$ $2 = 2$ <p><math>\therefore x = 4</math> is the only solution.</p> <p><b>OR/OF</b></p> $3x - 5\sqrt{x} = 2$ $3x - 5x^{\frac{1}{2}} - 2 = 0$ $(3x^{\frac{1}{2}} + 1)(x^{\frac{1}{2}} - 2) = 0$ $3x^{\frac{1}{2}} = -1 \text{ or / of } x^{\frac{1}{2}} = 2$ $x^{\frac{1}{2}} = -\frac{1}{3} \text{ or / of } x = 4$ <p>since <math>x^{\frac{1}{2}}</math> must be <math>&gt;0</math>  <math>x = 4</math> is the only valid answer</p>	<ul style="list-style-type: none"> <li>✓ isolating/soleer <math>5\sqrt{x}</math></li> <li>✓ squaring both sides / kwadreer albei kante</li> <li>✓ standard form / standaardvorm</li> <li>✓ answers / antwoorde</li> <li>✓ testing and conclusion / toets en gevolgtrekking</li> <li>✓ standard form / standaardvorm</li> <li>✓✓ factors / faktore</li> <li>✓ answers / antwoorde</li> <li>✓ conclusion / gevolgtrekking (5)</li> </ul>
<p>1.2</p> $y - x - 6 = 0 \dots\dots\dots(1)$ $(x - 3)^2 + (y - 3)^2 = 18 \dots\dots(2)$ <p>from / vanaf (1): <math>y = x + 6 \dots\dots(3)</math></p> <p>(3) in (2): <math>(x - 3)^2 + (x + 6 - 3)^2 = 18</math></p> $x^2 - 6x + 9 + x^2 + 6x + 9 = 18$ $2x^2 = 0$ $\therefore x = 0$ <p><math>y = 0 + 6</math>  <math>= 6</math></p>	<ul style="list-style-type: none"> <li>✓ substitution / vervanging</li> <li>✓ removing brackets / verwyder hakies</li> <li>✓ standard form / standaardvorm</li> <li>✓ x-value / waarde</li> <li>✓ y-value / waarde</li> </ul> <p style="text-align: right;">(5)</p>

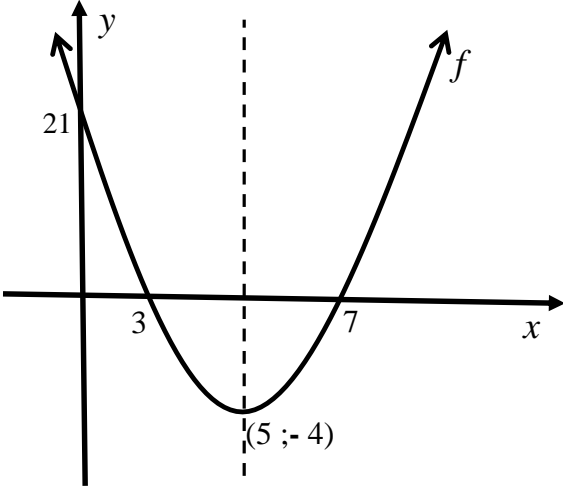
1.3	$1 + \frac{1}{x + \frac{1}{x}} = \frac{7}{5}$ $\frac{1}{x^2 + 1} = \frac{2}{5}$ $\frac{x}{x^2 + 1} = \frac{2}{5}$ $2x^2 + 2 = 5x$ $2x^2 - 5x + 2 = 0$ $(2x - 1)(x - 2) = 0$ $x = \frac{1}{2} \text{ or / of } x = 2$ <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>If candidate after step 3 concludes  <math>x = 2</math>, then max of <math>(2/5)</math>  As kandidaat na stap 3 aflei dat  <math>x = 2</math> is, dan maks van <math>(2/5)</math></p> </div>	<ul style="list-style-type: none"> <li>✓ adding denominator / optel van noemer</li> <li>✓ simplification / vereenvoudiging</li> <li>✓ standard form / standaardvorm</li> <li>✓ factors or formula / faktore of formule</li> <li>✓ answers / antwoorde</li> </ul> <p style="text-align: right;">(5)</p>
		<b>[25]</b>

## QUESTION 2/VRAAG 2

2.1.1	$\begin{array}{ccc} 1 & 5 & 12 & 22 & ; & x & ; & y \\ & 4 & 7 & 10 & & & & & - & 1^{\text{st}} \text{ differences} \\ & & 3 & 3 & & & & & - & 2^{\text{nd}} \text{ differences} \end{array}$ <p><math>T_5 = 35</math> and/en <math>T_6 = 51</math></p>	<p>✓✓ answers / antwoorde (2)</p>
2.1.2	$\begin{array}{l} 2a = 3 \qquad 3a + b = 4 \qquad a + b + c = 1 \\ a = \frac{3}{2} \qquad 3\left(\frac{3}{2}\right) + b = 4 \qquad \frac{3}{2} - \frac{1}{2} + c = 1 \\ \qquad \qquad \qquad b = -\frac{1}{2} \qquad \qquad \qquad c = 0 \\ \therefore T_n = \frac{3}{2}n^2 - \frac{1}{2}n \end{array}$	<p>✓ <math>a = \frac{3}{2}</math>  ✓ <math>b = -\frac{11}{2}</math>  ✓ <math>c = 4</math></p> <p>✓ answer / antwoord (4)</p>
2.1.3	$\begin{array}{l} \frac{3}{2}n^2 - \frac{1}{2}n = 3432 \\ \frac{3}{2}n^2 - \frac{1}{2}n - 3432 = 0 \\ 3n^2 - n - 6864 = 0 \\ (3n + 143)(n - 48) = 0 \\ n = -\frac{143}{3} \text{ or / of } n = 48 \end{array}$	<p>✓ equation / vergelyking</p> <p>✓ standard form / standaardvorm</p> <p>✓ factors or formula / faktore of formule</p> <p>✓ answer <math>n = 48</math> / antwoord <math>n = 48</math> (4)</p>
2.2.1	$\begin{array}{l} T_2 - T_1 = T_3 - T_2 \\ m + \sqrt{2} = 3\sqrt{2} - m \\ 2m = 2\sqrt{2} \\ m = \sqrt{2} \end{array}$ <p><b>OR/OF</b></p> $\begin{array}{l} m = \frac{-\sqrt{2} + 3\sqrt{2}}{2} \\ m = \frac{2\sqrt{2}}{2} \\ m = \sqrt{2} \end{array}$	<p>✓ method / metode</p> <p>✓ answer / antwoord</p> <p>✓ method / metode</p> <p>✓ answer / antwoord (2)</p>
2.2.2	$\begin{array}{l} T_{51} = a + 50d \\ = -\sqrt{2} + 50(2\sqrt{2}) \\ = 99\sqrt{2} \end{array}$	<p>✓ value of <math>d</math> / waarde van <math>d</math></p> <p>✓ substitution into correct formula / vervanging in korrekte formule</p> <p>✓ answer / antwoord (3)</p>

<p>2.3</p>	<p>Terms between 50 and 500 divisible by 7                  First term = 56 and Last term = 497</p> $56 + (n-1)(7) = 497$ $56 + 7n - 7 = 497$ $7n = 448$ $n = 64 \text{ terms / terme}$ <p style="text-align: center;"><b>OR/OF</b></p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <math display="block">\left(\frac{497-56}{7}\right) + 1</math> <math display="block">= 64 \text{ terms / terme}</math> </div> <p><b>If /As: (500 - 50)/7 = 64,29 ∴ n = 64 max/maks. (1/3)</b></p>	<ul style="list-style-type: none"> <li>✓ identification of first and last terms / vasstel van eerste en laaste terme</li> <li>✓ substitution / vervanging</li> <li>✓ answer / antwoord</li> </ul> <p style="text-align: right;">(3)</p>
<p>2.4.1</p>	<p><math>a = 2</math> &amp; <math>r = \frac{1}{3}</math> OR/OF <math>\frac{2}{1}; \frac{2}{3}; \frac{2}{9}</math></p> $T_n = 2\left(\frac{1}{3}\right)^{n-1}$ $= 2\left(\frac{1}{3}\right)^n \left(\frac{1}{3}\right)^{-1}$ $= 6\left(\frac{1}{3}\right)^n$ <p style="text-align: center;"><b>OR/OF</b></p> $T_n = \frac{2}{3^{n-1}}$ $= \frac{2}{(3^n)(3^{-1})}$ $= 6.(3)^{-n}$ $= 6\left(\frac{1}{3}\right)^n$	<ul style="list-style-type: none"> <li>✓ method / metode</li> <li>✓ substitution / vervanging</li> <li>✓ answer / antwoord = <math>6\left(\frac{1}{3}\right)^n</math></li> </ul> <p style="text-align: right;">(3)</p>
<p>2.4.2</p>	<p>Yes, because <math>-1 &lt; r &lt; 1</math>  <math>-1 &lt; \frac{1}{3} &lt; 1</math></p>	<ul style="list-style-type: none"> <li>✓ Yes</li> <li>✓ reason</li> </ul> <p style="text-align: right;">(2)</p>
<p>2.4.3</p>	$3^p = S_\infty - S_4$ $3^p = \frac{2}{1-\frac{1}{3}} - \frac{2\left(1-\left(\frac{1}{3}\right)^4\right)}{1-\frac{1}{3}}$ $3^p = 3 - \frac{80}{27}$ $3^p = \frac{81}{27} - \frac{80}{27}$ $3^p = \frac{1}{27}$ $3^p = 3^{-3}$ <p>∴ <math>p = -3</math></p>	<ul style="list-style-type: none"> <li>✓✓ substitution / vervanging</li> <li>✓ simplification / vereenvoudiging</li> <li>✓ exponential law / eksponensiële wet</li> <li>✓ answer / antwoord</li> </ul> <p style="text-align: right;">(5)</p>
<p>2.5</p>	$\sum_{k=1}^6 \left( \sum_{n=1}^k 1 \right) = 1 + (1+1) + (1+1+1) + (1+1+1+1) + (1+1+1+1+1) + (1+1+1+1+1+1)$ $= 1 + 2 + 3 + 4 + 5 + 6$ $= 21$	<ul style="list-style-type: none"> <li>✓ expansion / uitbreiding</li> <li>✓ answer / antwoord</li> </ul> <p style="text-align: right;">(2)</p>
<p><b>[30]</b></p>		

## QUESTION 3/VRAAG 3

3.1.1	$x = 5$	✓ answer / antwoord (1)
3.1.2	$(x-5)^2 = 4$ $x-5 = \pm 2$ $x = 3$ or/of $x = 7$ <b>OR / OF</b> $x^2 - 10x + 25 = 4$ $x^2 - 10x + 21 = 0$ $(x-3)(x-7) = 0$ $x = 3$ or/of $x = 7$	✓ let / stel $y = 0$ ✓ square root / vierkantswortel ✓ answer / antwoord (3) ✓ let / stel $y = 0$ ✓ factors / faktore ✓ answers / antwoorde
3.1.3		✓ x-intercepts / x-afsnitte ✓ y-intercepts / y-afsnit ✓ turning point / draaipunt ✓ shape / vorm (4)
3.1.4	Range of $f$ : $y \in [-4; \infty]$ or/of $y \geq -4$ $y \in R$	✓ answer / antwoord (1)
3.1.5	Reflection about the $x$ -axis / Refleksie in die $x$ -as $y = -(x-5)^2 + 4$	✓ answer / antwoord ✓ equation / vergelyking (2)

3.2	$x^2 + 3 = kx - 1$ $x^2 - kx + 4 = 0$ For $g(x)$ to be a tangent, roots are equal. $b^2 - 4ac = 0$ $(-k)^2 - 4(1)(4) = 0$ $k^2 - 16 = 0$ $k^2 = 16$ / $(k+4)(k-4) = 0$ $k = \pm 4$ / $k = -4$ or/of $k = 4$	✓ equating / gelykstel ✓ standard form / standaardvorm ✓ $\Delta = 0$ ✓ substitution / vervanging ✓ answers / antwoord (5)
		<b>[16]</b>

**QUESTION 4/VRAAG 4**

4.1	$p = 1$ and/en $q = 2$	✓ value of $p$ / waarde van $p$ ✓ value of $q$ / waarde van $q$ (2)
4.2	$y = \frac{a}{(x+1)} + 2$ $4 = \frac{a}{0+1} + 2$ $a = 2$ $\therefore y = \frac{2}{(x+1)} + 2$	✓ substitution of point / vervanging van punt ✓ value of $a$ / waarde van $a$ ✓ equation / vergelyking (3)
4.3	Point of intersection of axes of symmetry of $f$ is $(-1; 2)$ Point of intersection of axes of symmetry of $g$ is: $x - 3 = -x + 1$ $2x = 4$ $x = 2$ $y = -1$ Transformation is from $(-1; 2) \rightarrow (2; -1)$ $\therefore$ 3 units to the right and 3 units down	✓ point of intersection / snypunt ✓ equating / gelykstel ✓ $x$ -value and $y$ -value / $x$ -waarde en $y$ -waarde ✓ method / metode ✓ answer / antwoord (5)
		<b>[10]</b>



## QUESTION 5/VRAAG 5

5.1	$\frac{5}{6} = a^1 + \frac{1}{2}$ $\therefore a = \frac{1}{3}$	✓ substitution / vervanging ✓ answer / antwoord (2)
5.2	$p = \left(\frac{1}{3}\right)^{-2} + \frac{1}{2} = 9\frac{1}{2}$	✓ substitution / vervanging ✓ answer / antwoord (2)
5.3	$g : y = \left(\frac{1}{3}\right)^{-x} + \frac{1}{2}$ $= 3^x + \frac{1}{2}$	✓ answer / antwoord (1)
5.4	$h(x) = 3^x$ $h^{-1} : y = \log_3 x \quad \text{or/of} \quad \frac{\log x}{\log 3}$	✓ answer / antwoord $h$ ✓ answer / antwoord $h^{-1}$ (2)
5.5	Points : $(-2 ; 9\frac{1}{2})$ and $(0 ; \frac{3}{2})$ $m = \frac{y_2 - y_1}{x_2 - x_1}$ $= \frac{\frac{19}{2} - \frac{3}{2}}{-2 - 0}$ $= \frac{8}{-2}$ $= -4$	✓ coordinates of A / koördinate van A. ✓ substitution / vervanging ✓ answer / antwoord (3)
		<b>[10]</b>

## QUESTION 6/VRAAG 6

6.1	$1 + i_{eff} = \left(1 + \frac{i_{nom}}{n}\right)^n$ $i_{eff} = \left(1 + \frac{15}{1200}\right)^{12} - 1$ $= 0,1607545177$ <p><i>effective rate / effektiewe koers = 16,08% p. a</i></p>	<p>✓ formula / formule</p> <p>✓ substitution / vervanging</p> <p>✓ answer / antwoord (3)</p>
6.2.1	$A = P(1 + in)$ $= 75\,000(1 + 12\% \times 8)$ $= R147\,000$ <p>Monthly installment: <math>= \frac{R147\,000}{96\,months}</math></p> $= R1531,25$	<p>✓ substitution / vervanging</p> <p>✓ answer / antwoord</p> <p>✓ answer / antwoord (3)</p>
6.2.2	$A = P(1 + i)^n$ $147\,000 = 75\,000(1 + i)^8$ $(1 + i)^8 = 1,96$ $1 + i = \sqrt[8]{1,96}$ $i = 1,087757306 - 1$ $i = 0,08775.....$ <p><i>rate / koers = 8,78%</i></p>	<p>✓ substitution / vervanging</p> <p>✓ simplification / vereenvoudiging</p> <p>✓ making i subject of the formula / maak i die onderwerp van die formule</p> <p>✓ answer / antwoord (4)</p>
6.3	$A = 60\,000 \left(1 + \frac{0,07}{4}\right)^6 \left(1 + \frac{0,05}{12}\right)^{42} - 5\,000 \left(1 + \frac{0,05}{12}\right)^{24}$ $\therefore = R73762,19$ <p>OR/OF</p> $A = \left[60\,000 \left(1 + \frac{0,07}{4}\right)^6 \left(1 + \frac{0,05}{12}\right)^{18} - 5\,000\right] \left(1 + \frac{0,05}{12}\right)^{24}$ $= R73762,19$	<p>✓ ✓ ✓ setting up equation / opstel van vergelyking</p> <p>✓ answer / antwoord (4)</p> <p>[14]</p>

## QUESTION 7/VRAAG 7

7.1	$f(x) = -2x^2$ $f(x+h) = -2(x+h)^2$ $= -2(x^2 + 2xh + h^2)$ $= -2x^2 - 4xh - 2h^2$ $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$ $= \lim_{h \rightarrow 0} \frac{-2x^2 - 4xh - 2h^2 - (-2x^2)}{h}$ $= \lim_{h \rightarrow 0} \frac{-4xh - 2h^2}{h}$ $= \lim_{h \rightarrow 0} \frac{h(-4x - 2h)}{h}$ $= \lim_{h \rightarrow 0} (-4x - 2h)$ $= -4x$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">           Answer ONLY: 0 marks            SLEGS antwoord: 0 punte         </div>	$\checkmark -2x^2 - 4xh - 2h^2$ <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;">           Penalise 1 mark for incorrect use of formula. Must show <math>f'(x)</math>.            Penaliseer 1 punt vir verkeerde gebruik van formule. Moet <math>f'(x)</math> toon.         </div> $\checkmark$ substitution / vervanging  $\checkmark$ common factor / gemene faktor  $\checkmark$ answer / antwoord  (4)
7.2.1	$y = 6x + 4x\sqrt{x}$ $y = 6x + 4x^{\frac{3}{2}}$ $\frac{dy}{dx} = 6 + 6x^{\frac{1}{2}}$	<div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;">           Penalise 1 mark for incorrect notation.            Penaliseer 1 punt vir verkeerde notasie.         </div> $\checkmark 4x^{\frac{3}{2}}$  $\checkmark 6 \quad \checkmark 6x^{\frac{1}{2}}$  (3)
7.2.2	$D_t \left[ \frac{1-3t^2}{6t^2} \right]$ $= D_t \left[ \frac{1}{6t^2} - \frac{3t^2}{6t^2} \right]$ $= D_t \left[ \frac{1}{6}t^{-2} - \frac{1}{2} \right]$ $= -\frac{1}{3}t^{-3} / -\frac{1}{3t^3}$	$\checkmark \frac{1}{6}t^{-2} - \frac{1}{2}$  $\checkmark \checkmark$ answer / antwoord  (3)
<b>[10]</b>		

## QUESTION 8/VRAAG 8

8.1	$y = 1(x-1)(x-1)(x-4)$ $= (x^2 - 2x + 1)(x-4)$ $= x^3 - 4x^2 - 2x^2 + 8x + x - 4$ $= x^3 - 6x^2 + 9x - 4$ $\therefore b = -6 \text{ and } c = 9$ <p><b>OR/OF</b></p> $1 + b + c - 4 = 0$ $b + c = 3 \dots\dots\dots(1)$ $64 + 16b + 4c - 4 = 0$ $16b + 4c = -60 \dots\dots\dots(2)$ <p>(2) - (1) <math>\times 4</math>:</p> $16b + 4c = -60$ $4b + 4c = 12$ $\therefore 12b = -72$ $b = -6$ $-6 + c = 3$ $\therefore c = 9$	<p>✓ substitution / vervanging</p> <p>✓ expanding / uitbreiding</p> <p>✓ answer / antwoord</p> <p>✓ both equations / albei vergelykings</p> <p>✓ subtraction / aftrekking</p> <p>✓ answers / antwoorde</p> <p style="text-align: right;">(3)</p>
8.2	$f(x) = x^3 - 6x^2 + 9x - 4$ $f'(x) = 3x^2 - 12x + 9 = 0$ $(3x - 9)(x - 1) = 0$ $3x - 9 = 0 \text{ or/of } x - 1 = 0$ $x = 3 \text{ or/of } x = 1$ $y = -4$ $B(3; -4)$	<p>✓ <math>f'(x) = 0</math></p> <p>✓ factors / faktore</p> <p>✓ x-values / waardes</p> <p>✓ coordinates of B / koördinate van B</p> <p style="text-align: right;">(4)</p>
8.3	$x < 1 \text{ or/of } x > 3$	<p>✓ <math>x &lt; 1</math>    ✓ <math>x &gt; 3</math></p> <p style="text-align: right;">(2)</p>

8.4	$f'(x) = 3x^2 - 12x + 9$ $f''(x) = 6x - 12 = 0$ $x = 2$ $y = -2$ Point of inflection/infleksie punt: (2 ; -2)  equation of line / vergelyking van lyn: $y = x - 4$ $-2 = 2 - 4$ $-2 = -2$	✓ $f''(x) = 0$  ✓ coordinates / koördinate  ✓ equation of line / vergelyking van lyn  ✓ method / metode	(4)
			[13]

## QUESTION 9/VRAAG 9

9.1	height of $\triangle APQ = (8 - y)$ $\frac{x}{10} = \frac{8 - y}{8}$ ( $\triangle APQ \parallel \triangle ABC$ ) $8x = 80 - 10y$ $10y = -8x + 80$ $y = -\frac{8}{10}x + 8$	✓ ratios / verhoudings  ✓ answer / antwoord	(2)	
9.2	$A = l \times b$ $= x \times \left(-\frac{8}{10}x + 8\right)$ $= -\frac{8}{10}x^2 + 8x$	<div style="border: 1px solid black; padding: 5px; display: inline-block;">           No mark for the answer /            Geen punt vir die antwoord         </div> ✓ formula / formule ✓ substitution / vervanging	(2)	
9.3	$A(x) = 8x - \frac{8x^2}{10}$  $A'(x) = -\frac{16}{10}x + 8 = 0$ $x = -8 \times -\frac{10}{16}$ $x = 5 \text{ cm}$ $y = -\frac{8}{10}(5) + 8 = 4 \text{ cm}$	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>OR</b> to get y / <b>OF</b> om vir y te kry  <math>A = 8(5) - \frac{8(5)^2}{10}</math>  <math>= 20 \text{ cm}^2</math>  <math>\therefore y = 4 \text{ cm}</math> </div>	✓ $A'(x)$ ✓ $= 0$  ✓ length of x / lengte van x  ✓ length of y / lengte van y	(4)
			[8]	

**QUESTION 10/VRAAG 10**

10.1.1	$P(A \text{ or/of } B)' = 1 - P(A \text{ or/of } B)$ $= 0,3$	✓ answer / antwoord (1)
10.1.2	$P(A \text{ or/of } B) = P(A) + P(B)$ $0,7 = 0,4 + k$ $\therefore k = 0,3$	✓ rule / reël ✓ answer / antwoord (2)
10.1.2	$P(A \cup B) = P(A) + P(B) - P(A \cap B)$ $0,7 = 0,4 + k - P(A \cap B)$ $\therefore P(A \cap B) = k - 0,3$  $P(A \cap B) = P(A) \times P(B)$ $k - 0,3 = 0,4 \times k$ $0,6k = 0,3$ $\therefore k = 0,5$	✓ substitution in rule / vervanging in reël ✓ answer / antwoord  ✓ substitution in rule / vervanging in reël ✓ answer / antwoord (4)
10.2		
10.2.1	$m = \frac{10}{24} / \frac{5}{12}$ and/en $n = \frac{30}{240} / \frac{3}{24} / \frac{1}{8}$	✓ answer $m$ / antwoord $m$ ✓ answer $n$ / answer $n$ (2)
10.2.2	$\frac{14}{24} \times \frac{9}{x+9} = \frac{7}{20}$ or/of $\frac{14}{24} \times \frac{x}{x+9} = \frac{7}{30}$ $\frac{126}{24x+216} = \frac{7}{20}$ or/of $\frac{14x}{24x+216} = \frac{7}{30}$ $168x + 1512 = 2520$ <span style="margin-left: 150px;"><math>420x = 168x + 1512</math></span> $168x = 1008$ <span style="margin-left: 150px;"><math>252x = 1512</math></span> $x = 6$ <span style="margin-left: 150px;"><math>x = 6</math></span>	✓ $\frac{9}{x+9} / \frac{x}{x+9}$ ✓ equation / vergelyking  ✓ answer / antwoord (3)
10.2.3	$P(\text{Green} \setminus \text{Groen}) = \frac{7}{24} + \frac{7}{30}$ $= \frac{21}{40} \quad (0,525)$	✓ addition / optelling ✓ answer / antwoord (2)
<b>[14]</b>		
<b>TOTAL/TOTAAL:</b>		<b>150</b>