



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE
*NASIONALE
SENIOR SERTIFIKAAT***

GRADE/*GRAAD* 12

**MATHEMATICS P1/*WISKUNDE V1*
FEBRUARY/*MARCH*/*FEBRUARIE*/*MAART* 2014
MEMORANDUM**

MARKS/*PUNTE*: 150

**This memorandum consists of 17 pages.
*Hierdie memorandum bestaan uit 17 bladsye.***

NOTE:

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

LET WEL:

- As 'n kandidaat 'n vraag TWEE keer beantwoord het, merk slegs die eerste poging.
- As 'n kandidaat 'n antwoord deurgehaal en nie oorgedoen het nie, merk die deurgehaalde antwoord.
- Volgehoue akkuraatheid is DEURGAANS in ALLE aspekte van die memorandum van toepassing.
- Aanvaarding van waardes/antwoorde om 'n problem op te los, is onaanvaarbaar.

QUESTION/VRAAG 1

| | | |
|-------|--|--|
| 1.1.1 | $x^2 - 2x - 35 = 0$ $(x - 7)(x + 5) = 0$ $x = 7 \quad \text{or} \quad x = -5$ | ✓ factors ✓ answer ✓ answer (3) |
| 1.1.2 | $x^2 - 16 \geq 0$ $(x - 4)(x + 4) \geq 0$ $\begin{array}{ccccccc} + & 0 & - & 0 & + & & \\ & -4 & & 4 & & & \end{array} \quad \text{or} \quad \begin{array}{c} \text{graph of } x^2 - 16 \geq 0 \\ \text{with x-axis and points } -4 \text{ and } 4 \end{array}$ $x \leq -4 \quad \text{or} \quad x \geq 4 \quad \text{OR} \quad x \in (-\infty; -4] \quad \text{or} \quad x \in [4; \infty)$ $\text{OR} \quad x \in (-\infty; -4] \cup [4; \infty)$ | ✓ factors ✓ critical values ✓ $x \leq -4$ ✓ $x \geq 4$ (4) |
| 1.1.3 | $9 \cdot 2^{x-1} = 2 \cdot 3^x$ $3^2 \cdot 2^{x-1} = 2 \cdot 3^x$ $2^{x-2} = 3^{x-2}$ $\left(\frac{2}{3}\right)^{x-2} = 1$ $\left(\frac{2}{3}\right)^{x-2} = \left(\frac{2}{3}\right)^0$ $x - 2 = 0$ $x = 2$ OR | ✓ $2^{x-2} = 3^{x-2}$ ✓ $x - 2 = 0$ ✓ answer (3) |

| | | |
|-----|--|--|
| | $9 \cdot 2^{x-1} = 2 \cdot 3^x$ $\frac{9 \cdot 2^x}{2} = 2 \cdot 3^x$ $9 \cdot 2^x = 4 \cdot 3^x$ $\frac{2^x}{3^x} = \frac{4}{9}$ $\left(\frac{2}{3}\right)^x = \frac{4}{9}$ $\left(\frac{2}{3}\right)^x = \left(\frac{2}{3}\right)^2$ $x = 2$ | $\checkmark \frac{9 \cdot 2^x}{2}$ $\checkmark \left(\frac{2}{3}\right)^x = \frac{4}{9}$ $\checkmark \text{answer}$ <p style="text-align: right;">(3)</p> |
| 1.2 | $f(x) = x^2 - 5x + c$ $x = \frac{5 \pm \sqrt{25 - 4(1)(c)}}{2}$ $25 - 4c = 41$ $-4c = 16$ $c = -4$ <p>OR</p> $x = \frac{5 \pm \sqrt{41}}{2}$ $2x - 5 = \pm \sqrt{41}$ $(2x - 5)^2 = 41$ $4x^2 - 20x + 25 = 41$ $4x^2 - 20x - 16 = 0$ $x^2 - 5x - 4 = 0$ $\therefore c = -4$ | $\checkmark \text{substitution into correct formula}$ $\checkmark 25 - 4c = 41$ $\checkmark c = -4$ $\checkmark \text{squaring both sides}$ $\checkmark 4x^2 - 20x - 16 = 0$ $\checkmark c = -4$ <p style="text-align: right;">(3)</p> |
| 1.3 | $3^{x-10} = 3^{3x}$ $x - 10 = 3x$ $2x = -10$ $x = -5$ $y^2 + x = 20$ $y^2 - 5 = 20$ $y^2 = 25$ $y = -5 \text{ or } y = 5$ | $\checkmark \text{equating of exponents}$ $\checkmark \text{x-value}$ $\checkmark 20 = y^2 - 5$ $\checkmark \checkmark \text{y-values}$ <p style="text-align: right;">(5)</p> <p style="text-align: right;">[18]</p> |

QUESTION 2/VRAAG 2

| | | |
|-------|---|--|
| 2.1.1 | $T_3 = 20$ and $T_4 = 40$ $r = \frac{T_4}{T_3} = 2$ | ✓ answer (1) |
| 2.1.2 | $T_n = ar^{n-1}$ $20 = a \cdot 2^{3-1}$ $a = 5$ $T_n = 5 \cdot 2^{n-1}$ OR $40 = a \cdot 2^{4-1}$ $a = 5$ $T_n = 5 \cdot 2^{n-1}$ | ✓ subs into correct formula ✓ $a = 5$ ✓ answer (3) ✓ subs into correct formula ✓ $a = 5$ ✓ answer (3) |
| 2.2.1 | $\frac{-7}{125}$ | ✓ answer (1) |
| 2.2.2 | $T_n = \frac{2 + (n-1)(-3)}{(1) \cdot 5^{n-1}}$ $T_n = \frac{5-3n}{5^{n-1}}$ | ✓ 5 ✓ 5^{n-1} ✓ $-3n$ (3) |
| 2.2.3 | $T_n = \frac{5-3n}{5^{n-1}}$ $T_{500} = \frac{5-3(500)}{5^{499}}$ $= \frac{-1495}{5^{499}}$ | ✓ numerator ✓ denominator (2) |
| 2.2.4 | $5-3n < -59$ $-3n < -64$ $n > 21,333\dots$ $n = 22$ | ✓ $5-3n < -59$ ✓ $n > 21,333\dots$ ✓ $n = 22$ (3) [13] |

QUESTION/VRAAG 3

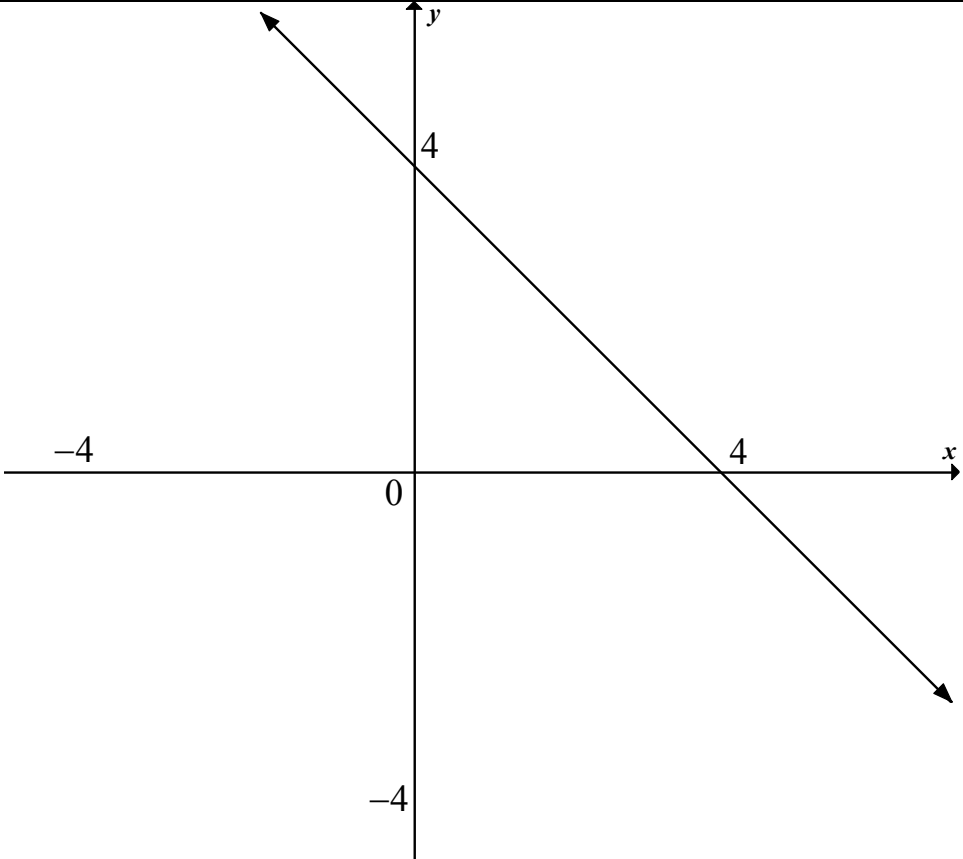
| | | |
|-------|--|--|
| 3.1.1 | $w - 3; 2w - 4; 23 - w$ $(2w - 4) - (w - 3) = (23 - w) - (2w - 4)$ $w - 1 = 27 - 3w$ $4w = 28$ $w = 7$ | $\checkmark (2w - 4) - (w - 3)$ $= (23 - w) - (2w - 4)$ $\checkmark w = 7$ <p style="text-align: right;">(2)</p> |
| 3.1.2 | <p>Sequence is: 4 ; 10 ; 16 First difference / <i>Eerste verskil</i> = 6</p> <p>OR</p> $d = w - 1$ $= 6$ | \checkmark answer <p style="text-align: right;">(1)</p> \checkmark answer <p style="text-align: right;">(1)</p> |
| 3.2 | $T_{50} = 3 + (4 + 10 + 16 + \dots \text{ to } 49 \text{ terms})$ $T_{50} = 3 + \frac{49}{2} [2(4) + (49 - 1)(6)]$ $= 3 + 7252$ $= 7255$ <p>OR</p> $2a = 6$ $a = 3$ $3a + b = 4$ $3(3) + b = 4$ $b = -5$ $a + b + c = 3$ $3 - 5 + c = 3$ $c = 5$ $T_n = 3n^2 - 5n + 5$ $T_{50} = 3(50)^2 - 5(50) + 5$ $= 7255$ | $\checkmark T_{50} = 3 + \text{sum of } 49$ linear terms $\checkmark a = 4$ $\checkmark n = 49$ $\checkmark 7252 (\text{sum of } 49$ terms) \checkmark answer <p style="text-align: right;">(5)</p> $\checkmark a = 3$ $\checkmark b = -5$ $\checkmark c = 5$ \checkmark substitution 50 \checkmark answer <p style="text-align: right;">(5)</p> <p style="text-align: right;">[8]</p> |

QUESTION/VRAAG 4

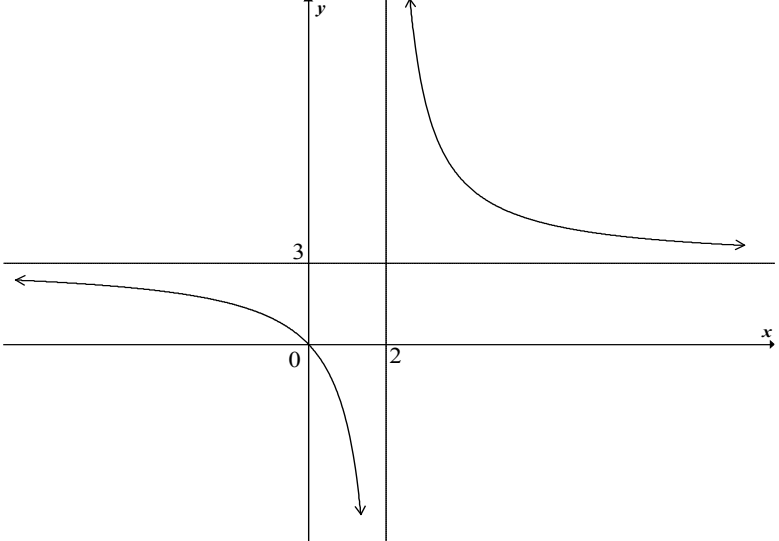
| | | |
|-----|--|---|
| 4.1 | $S_n = p \left(1 - \left(\frac{1}{2} \right)^n \right)$ $a = p \left[1 - \left(\frac{1}{2} \right)^1 \right]$ $= \frac{p}{2}$ $r = \frac{1}{2}$ $\therefore 10 = \frac{\frac{p}{2}}{1 - \frac{1}{2}}$ $5 = \frac{p}{2}$ $p = 10$ <p>OR</p> $\left(\frac{1}{2} \right)^n \rightarrow 0 \text{ as } n \rightarrow \infty$ $\therefore S_\infty = p$ $p = 10$ | $\checkmark a = \frac{p}{2}$ $\checkmark r = \frac{1}{2}$ \checkmark substitute in correct formula \checkmark answer (4) |
| 4.2 | $r = \frac{1}{2}$ $\frac{a}{1 - \frac{1}{2}} = 10$ $a = 5$ $T_2 = ar = \frac{5}{2}$ <p>OR</p> | $\checkmark r = \frac{1}{2}$ \checkmark substitution $\checkmark a = 5$ \checkmark answer |

| | | |
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| | $S_n = 10 - 10 \cdot 2^{-n}$ $a = T_1$ $= S_1$ $= 10 - 10 \cdot 2^{-1}$ $= 10 - \frac{10}{2}$ $= 5$ $T_2 = S_2 - T_1$ $= 10 - 10 \cdot 2^{-2} - 5$ $= 10 - \frac{10}{4} - 5$ $= \frac{5}{2}$ <p>OR</p> $T_2 = S_2 - S_1$ $= p \left(1 - \left(\frac{1}{2} \right)^2 \right) - p \left(1 - \frac{1}{2} \right)$ $= \frac{p}{4}$ $= \frac{10}{4}$ $= \frac{5}{2}$ | $\checkmark S_1 = 5$ $\checkmark a = 5$ $\checkmark T_2 = S_2 - T_1$ $\checkmark \text{answer}$ <p style="text-align: right;">(4)</p> $\checkmark T_2 = S_2 - S_1$ $\checkmark \text{substitution}$ $\checkmark \frac{p}{4}$ $\checkmark \text{answer}$ <p style="text-align: right;">(4)</p> <p style="text-align: right;">[8]</p> |
|--|---|--|

QUESTION/VRAAG 5

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| 5.1 |  | <ul style="list-style-type: none"> ✓ x-intercept of straight line ✓ y-intercept of straight line ✓✓ circle <p style="text-align: right;">(4)</p> |
| 5.2 | Points of intersection are $(0 ; 4)$ and $(4 ; 0)$ | <ul style="list-style-type: none"> ✓ $(0 ; 4)$ ✓ $(4 ; 0)$ <p style="text-align: right;">(2) [6]</p> |

QUESTION/VRAAG 6

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| 6.1 | $x = 2$ $y = 3$ | ✓ $x = 2$ ✓ $y = 3$ (2) |
| 6.2 | R ; $x \neq 2$ OR $(-\infty ; 2) \cup (2 ; \infty)$ OR R – {2} | ✓ answer (1) |
| 6.3 |  | ✓ shape ✓ intercept at origin ✓✓ asymptotes (4) |
| 6.4 | $y = x + 3$ and $y = -x + 1$ $x + 3 = -x + 1$ $2x = -2$ $x = -1$ $y = -1 + 3$ $= 2$ Point of intersection of asymptotes: $(-1 ; 2)$ <i>Die snypunt van die asimptote:</i> The transformation is a translation 3 units left and 1 unit down <i>Die transformasie is 'n translasie van 3 eenhede na links en 1 eenheid na onder</i> OR The transformation is $(x ; y) \rightarrow (x - 3 ; y - 1)$ | ✓ $x + 3 = -x + 1$ ✓ $x = -1$ ✓ $y = 2$ ✓ transformation (4) [11] |

QUESTION/VRAAG 7

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| <p>7.1</p> | | <p>✓ C(0 ; 5) (1)</p> |
| <p>7.2</p> | $x = \frac{-4 + 0}{2}$ $= -2$ | <p>✓ $\frac{-4 + 0}{2}$ (1)</p> |
| <p>7.3</p> | $p = -2$ $y = a(x + 2)^2 + q$ $5 = a(0 + 2)^2 + q$ $5 = 4a + q$ $0 = a(1 + 2)^2 + q$ $0 = 9a + q$ $5a = -5$ $a = -1$ $q = 9$ $f(x) = -(x + 2)^2 + 9$ <p>OR</p> $p = -2$ $f(x) = a(x - 1)(x + 5)$ $5 = a(-1)(5)$ $a = -1$ $q = f(-2)$ $= -1(-3)(3)$ $= 9$ | <p>✓ $p = -2$ ✓ $5 = 4a + q$ ✓ $0 = 9a + q$ ✓ simultaneous equation ✓ $a = -1$ ✓ $q = 9$ (6)</p> <p>✓ $p = -2$ ✓ $f(x) = a(x - 1)(x + 5)$ ✓ substitution ✓ $a = -1$ ✓ substitution ✓ $q = 9$ (6)</p> |
| <p>7.4</p> | $-x^2 - 4x + 5 = -2x - 3$ $x^2 + 2x - 8 = 0$ $(x + 4)(x - 2) = 0$ $x = -4 \quad \text{or} \quad x = 2$ <p>∴ x - coordinate of D is 2</p> | <p>✓ equating ✓ standard form ✓ factors ✓ 2 (4)</p> |

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| 7.5 | $(-2 ; -9)$ | $\checkmark 2$ $\checkmark -9$ (2) [14] |
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QUESTION/VRAAG 8

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|-----|-----------|---|
| 8.1 | $A(1; 0)$ | \checkmark answer (1) |
| 8.2 | | \checkmark shape $\checkmark A(0 ; 1)$ $\checkmark B\left(2; \frac{1}{9}\right)$ (3) |
| 8.3 | R | \checkmark answer (1) [5] |

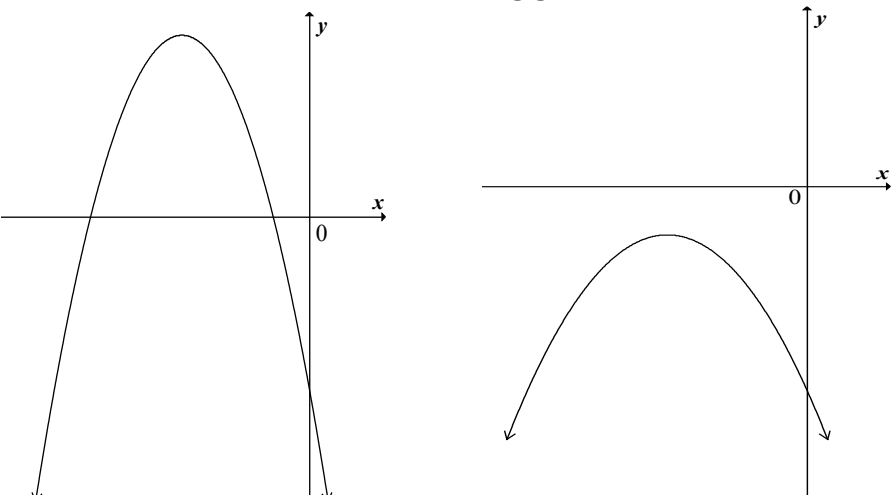
QUESTION/VRAAG 9

| | | |
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| 9.1 | $1 + i_{eff} = \left(1 + \frac{i_{nom}}{m}\right)^m$ $1 + i_{eff} = \left(1 + \frac{0,07}{12}\right)^{12}$ $i_{eff} = 0,07229008$ $i_{eff} = 7,23\%$ | \checkmark substitution into correct formula $\checkmark \frac{0,07}{12}$ \checkmark answer (3) |
|-----|--|--|

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| 9.2 | $P_v = \frac{x[1 - (1+i)^{-n}]}{i}$ $350\,000 = \frac{6300\left[1 - \left(1 + \frac{0,07}{12}\right)^{-n}\right]}{\frac{0,07}{12}}$ $\frac{73}{108} = \left(1 + \frac{0,07}{12}\right)^{-n}$ $\log \frac{73}{108} = -n \log \left(1 + \frac{0,07}{12}\right)$ $n = 67,33938079$ $n = 67,34 \text{ months}$ | <ul style="list-style-type: none"> ✓ $i = \frac{0,07}{12}$ ✓ substitution in the correct formula ✓ simplification ✓ use of logs ✓ answer (5) |
| 9.3 | $P_v = \frac{x[1 - (1+i)^{-n}]}{i} (1+i)$ $P_v = \frac{6\,300\left[1 - \left(1 + \frac{0,07}{12}\right)^{-0,3393\dots}\right]}{\frac{0,07}{12}} \left(1 + \frac{0,07}{12}\right)$ $P_v = R\,2\,142,21$ <p>OR</p> <p>Balance outstanding:</p> $= \left[350\,000 \left(1 + \frac{0,07}{12}\right)^{67} - \frac{6\,300\left[\left(1 + \frac{0,07}{12}\right)^{67} - 1\right]}{\frac{0,07}{12}} \right] \left(1 + \frac{0,07}{12}\right)$ $= R\,2\,142,21$ | <ul style="list-style-type: none"> ✓ $n = -0,3393\dots$ ✓ $i = \frac{0,07}{12}$ ✓ substitution in the correct formula ✓ multiplication by $\left(1 + \frac{0,07}{12}\right)$ ✓ answer (5) <ul style="list-style-type: none"> ✓ $n = -0,3393\dots$ ✓ $i = \frac{0,07}{12}$ ✓ substitution in the correct formula ✓ multiplication by ✓ answer (5) |
| 9.4 | $252\,000 = 350\,000(1-i)^3$ $(1-i)^3 = \frac{252\,000}{350\,000}$ $i = 1 - \sqrt[3]{\frac{252}{350}}$ $i = 10,37\%$ | <ul style="list-style-type: none"> ✓ $n = 3$ ✓ substitution in the correct formula ✓ answer (3) <p style="text-align: right;">[16]</p> |

QUESTION/VRAAG 10

| | | |
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| 10.1.1 | $f(x) = -\frac{2}{x}$ $f(x+h) = -\frac{2}{(x+h)}$ $f(x+h) - f(x) = -\frac{2}{(x+h)} - \left(-\frac{2}{x}\right)$ $= \frac{-2x + 2(x+h)}{x(x+h)}$ $= \frac{-2x + 2x + 2h}{x(x+h)}$ $= \frac{2h}{x(x+h)}$ $f'(x) = \lim_{h \rightarrow 0} \frac{\frac{2h}{x(x+h)}}{h}$ $= \lim_{h \rightarrow 0} \left(\frac{2}{x^2 + xh} \right)$ $= \frac{2}{x^2}$ <p>OR</p> $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$ $= \lim_{h \rightarrow 0} \frac{\left[-\frac{2}{(x+h)} \right] - \left(-\frac{2}{x} \right)}{h}$ $= \lim_{h \rightarrow 0} \frac{-2x + 2(x+h)}{x(x+h)h}$ $= \lim_{h \rightarrow 0} \frac{-2x + 2x + 2h}{x(x+h)h}$ $= \lim_{h \rightarrow 0} \frac{2h}{x(x+h)h}$ $= \lim_{h \rightarrow 0} \frac{2}{x(x+h)}$ $= \lim_{h \rightarrow 0} \left(\frac{2}{x^2 + xh} \right)$ $= \frac{2}{x^2}$ | <p>✓ substitution</p> <p>✓ simplification</p> <p>✓ formula</p> <p>✓ common factor</p> <p>✓ answer (5)</p> <p>✓ formula</p> <p>✓ substitution</p> <p>✓ simplification</p> <p>✓ common factor</p> <p>✓ answer (5)</p> |
|--------|--|---|

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| <p>10.1.2</p> | $f'(x) = \frac{2}{x^2}$ $x^2 \geq 0 \text{ for } x \in R$ $f'(x) > 0 \text{ for } x \in R; x \neq 0$ | <p>✓ $x^2 \geq 0$ or $\frac{2}{x^2} \geq 0$ for $x \in R$</p> <p>✓ $f'(x) > 0$ for $x \in R; x \neq 0$</p> <p>(2)</p> |
| <p>10.2</p> | $y = \frac{1}{4}x^2 - 2x$ $\frac{dy}{dx} = \frac{1}{2}x - 2$ | <p>✓ $\frac{1}{2}x$</p> <p>✓ -2</p> <p>(2)</p> |
| <p>10.3</p> | $y = 4(\sqrt[3]{x^2})$ $y = 4x^{\frac{2}{3}}$ <p>and $x = w^{-3}$</p> $y = 4(w^{-3})^{\frac{2}{3}}$ $= 4w^{-2}$ $\frac{dy}{dw} = -8w^{-3}$ $= -\frac{8}{w^3}$ | <p>✓ $y = 4x^{\frac{2}{3}}$</p> <p>✓ subs: $4(w^{-3})^{\frac{2}{3}}$</p> <p>✓ simplification</p> <p>✓ answer</p> <p>(4)</p> |
| <p>10.4</p> | $f'(x) = 3ax^2 + 2bx + c$ <p>$a < 0$ shape (max TP)</p> <p>$c < 0$ y - intercept is negative</p> <p>$b < 0$ axis of symmetry on LHS of y - axis</p> <p>ACCEPT</p>  | <p>✓</p> $f'(x) = 3ax^2 + 2$ <p>✓ shape (max TP)</p> <p>✓ axis of symmetry on LHS if y-axis</p> <p>✓ y - intercept is below x-axis</p> <p>(4) [17]</p> |

QUESTION/VRAAG 11

| | | |
|------|--|--|
| 11.1 | $f(x) = -(x-1)(x-2)(x-4)$ $f(x) = -(x^2 - 3x + 2)(x-4)$ $f(x) = -x^3 + 7x^2 - 14x + 8$ | $\checkmark -(x-1)(x-2)(x-4)$ $\checkmark a = 7$ $\checkmark b = -14$ $\checkmark c = 8$ (4) |
| 11.2 | $f(x) = -x^3 + 7x^2 - 14x + 8$ $f'(x) = 0$ $-3x^2 + 14x - 14 = 0$ $3x^2 - 14x + 14 = 0$ $x = \frac{14 \pm \sqrt{14^2 - 4(3)(14)}}{2(3)}$ $= \frac{14 \pm \sqrt{28}}{6}$ $= \frac{7 \pm \sqrt{7}}{3}$ $x = 1,45 \quad \text{or} \quad x = 3,22$ | $\checkmark f'(x) = 0$ $\checkmark -3x^2 + 14x - 14 = 0$ \checkmark subs into formula $\checkmark x$ -value $\checkmark x$ -value (5) |
| 11.3 | $x < 1,45 \quad \text{or} \quad x > 3,22$ | \checkmark critical values $\checkmark \checkmark$ notation (3) [12] |

QUESTION/VRAAG 12

| | | |
|------|--|---|
| 12.1 | $40 - x$ | \checkmark answer (1) |
| 12.2 | $P(x) = (40 - x)(144 + 4x)$ $= 4(40 - x)(36 + x)$ $= 5\,760 + 16x - 4x^2$ | \checkmark concept of multiplication $\checkmark (144 + 4x)$ \checkmark answer (3) |
| 12.3 | $P'(x) = 16 - 8x$ $P'(x) = 0$ $16 - 8x = 0$ $8x = 16$ $x = 2$ Cost = $144 + 4(2)$ = R 152 OR Max at $x = \frac{40 - 36}{2} = 2$ Cost = $144 + 4(2)$ = R 152 | $\checkmark P'(x) = 16 - 8x$ $\checkmark P'(x) = 0$ $\checkmark x = 2$ \checkmark answer (4) $\checkmark x = 40$ & 36 are solutions to $P(x) = 0$ $\checkmark \checkmark x = \frac{40 - 36}{2} = 2$ \checkmark answer (4) |

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|-----------------------|---------|-------------------|------|-----------|----------------|
| OR | | | | | |
| | | Number of watches | Cost | Income | |
| | Year 0: | 40 | 144 | 5 760 | ✓✓ explanation |
| | Year 1: | 39 | 148 | 5 772 | |
| | Year 2: | 38 | 152 | 5 776 | |
| | Year 3: | 37 | 156 | 5 772 | |
| Max Income at $x = 2$ | | | | ✓ $x = 2$ | |
| Max cost = R 152 | | | | ✓ R 152 | |
| | | | | | (4) |
| | | | | | [8] |

QUESTION/VRAAG 13

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|-------------|--------------------------------------|--|--|--|
| 13.1 | $40x + 50y \leq 2000$ | ✓✓ $40x + 50y \leq 2000$ ✓✓ $64x + 40y \leq 2560$ ✓ $x \geq 15$ (5) | | |
| | $64x + 40y \leq 2560$ | | | |
| | $x \geq 15$ | | | |
| | OR | | | |
| | $y \leq -\frac{4}{5}x + 40$ | | ✓✓ $y \leq -\frac{4}{5}x + 40$ ✓✓ $y \leq -\frac{8}{5}x + 64$ ✓ $x \geq 15$ (5) | |
| | $y \leq -\frac{8}{5}x + 64$ | | | |
| | $x \geq 15$ | | | |
| | OR | | | |
| | $\frac{y}{40} + \frac{x}{50} \leq 1$ | | | ✓✓ $\frac{y}{40} + \frac{x}{50} \leq 1$ ✓✓ $\frac{y}{64} + \frac{x}{40} \leq 1$ ✓ $x \geq 15$ (5) |
| | $\frac{y}{64} + \frac{x}{40} \leq 1$ | | | |
| $x \geq 15$ | | | | |

| | | |
|-------------|--|--|
| <p>13.2</p> | | <p>✓ feasible region ✓ $40x + 50y \leq 2000$ ✓ $64x + 40y \leq 2560$ ✓ $x \geq 15$</p> <p>(4)</p> |
| <p>13.3</p> | <p>40 containers</p> | <p>✓✓ answer</p> <p>(2)</p> |
| <p>13.4</p> | <p>$P = 1400x + 1000y$</p> <p>$m = -\frac{14}{10}$</p> <p>$m = -\frac{7}{5}$</p> <p>Using the search line :</p> <p>Maximum achieved at (30; 16)</p> | <p>✓ $P = 1400x + 1000y$</p> <p>✓ search line ✓ Max at (30 ; 16)</p> <p>(3) [14]</p> |

TOTAL/TOTAAL: 150