education

Department of Education
FREE STATE PROVINCE

GRADE/GRAAD 8

MATHEMATICS/WISKUNDE

NOVEMBER 2022

MARKS/PUNTE: 50

MARKING GUIDELINES
NASIENRIGLYN

This marking guide consists of 4 pages including cover page

Hierdie nasiengids bestaan uit 4 bladsye insluitend voorblad

GENERAL MARKING NOTE/ ALGEMENE NASIEN NOTA:

1. Give full marks for answers only, unless otherwise stated.

Gee volpunte slegs vir antwoorde, tensy anders vermeld.

2. Accept any alternative correct solution that is not included in the memorandum.

Aanvaar enige alternatiewe korrekte oplossing wat nie by die memorandum.

3.

SYMBOL/SIMBOOL	KEY/ VERDUIDELIKING
M	Method mark/ Metode merk
CA	Consistency Accuracy Mark/Konsekwentheid Akkuraatheid Merk
A	Accuracy Marking/Akkuraatheid Merk

QUESTION/VRAAG 1

1.1.1

$8 + (-10) - (+14)$ **CM**
$= 8 - 10 - 14$
$= -2 - 14$
$= -16$

OR/OF

$8 + (-10) - (+14)$ **CM**
$= 8 - 10 - 14$
$= 8 - 24$
$= -16$

OR/OFpunte akkuraat verbind

$8 + (-10) - (+14)$ **CM**
$= 8 - 10 - 14$
$= -6 - 10$
$= -16$

✓ removing brackets/ hakies te verwyder
✓ -2
✓ answer/antwoord

✓ removing brackets/ hakies te verwyder
✓ -24
✓ answer/antwoord

✓ removing brackets/ hakies te verwyder
✓ -6
✓ answer/antwoord

(3)

1.1.2

$\left(1 + \frac{6}{9}\right) \div \left(1 - \frac{3}{18}\right)$ **CM/A**
$= \left(\frac{9}{9} + \frac{6}{9}\right) \div \left(\frac{18}{18} - \frac{3}{18}\right)$
$= \frac{15}{9} \div \frac{15}{18}$
$= \frac{15}{9} \times \frac{18}{15}$
$= 2$

✓ same denominator/ dieselfde noemer
✓ simplifying brackets/ hakies te vereenvoudig
✓ multiplying by inverse/ vermenigvuldig met inverse
✓ answer/antwoord

(4)

1.1.3

$\frac{(3\times 2^2)^2}{3\times 2^4}$ **A**
$= \frac{3^2\times 2^4}{3\times 2^4}$
$= 3$

✓ raising a product/die verhoging van 'n produk
✓ answer/aandwoord

(2)

1.2

$\sqrt[3]{2744}$ **A**

2	2744
2	1372
2	686
7	343
7	49
7	7
	1

$\sqrt[3]{2744}$
$= \sqrt[3]{2^3 \times 7^3}$
$= 2 \times 7$
$= 14$

OR/OF

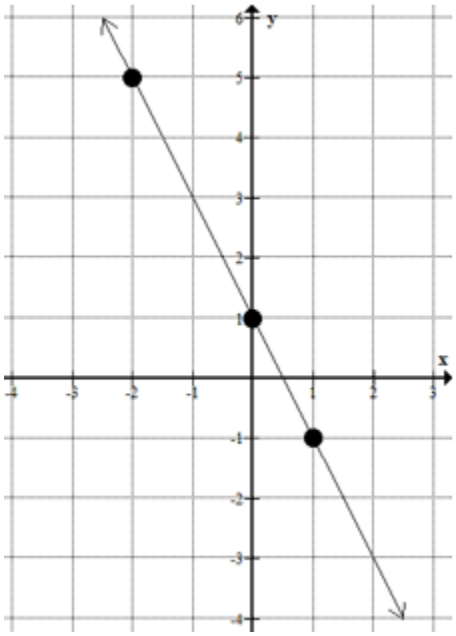
✓ prime factorisation/ priemfaktorisering
✓ $\sqrt[3]{2^3 \times 7^3}$
✓ 2×7
✓ answer/antwoord

	$\sqrt[3]{2744}$ $= \sqrt[3]{(2 \times 7) \times (2 \times 7) \times (2 \times 7)} = \sqrt[3]{(2 \times 7)^3}$ $= (2 \times 7)$ $= 14$	✓ prime factorisation/ priemfaktorisering ✓ $\sqrt[3]{(2 \times 7)^3}$ ✓ 2×7 ✓ answer/antwoord (4)
1.3	Increase 40 in the ratio 5:4 **M** $40 \times \frac{5}{4}$ $= 50$	✓ multiplyi by improper fraction/ vermenigvuldig met onbehoorlik breuk ✓ answer/antwoord (2)
1.4	208 000 000 **M** $= 2{,}08 \times 10^8$	✓ $2{,}08$ ✓ 10^8 (2)
		[17]

QUESTION/VRAAG 2		
2.1	14 **A**	✓ answer/antwoord (1)
2.2	3 **A**	✓ answer/antwoord (1)
2.3	$T_n = 3n + 2$ **M**	✓ $3n$ ✓ $+2$ (2)
2.4	$T_n = 3n + 2$ **CM** $= 3(76) + 2$ $= 230$	✓ substitution/ vervanging ✓ answer/antwoord (2)
		[6]

QUESTION/VRAAG 3		
3.1.1	$10x^2 + 12x - 17x - 9x^2$ **A** $= x^2 - 5x$	✓ x^2 ✓ $-5x$ (2)
3.1.2	$2a^2 + 2 - 3(5a - 8)$ **A/CM** $= 2a^2 + 2 - 15a + 24$ $= 2a^2 - 15a + 26$	✓✓ distribution by/ verspreiding deur -3 ✓ $+26$ (3)
3.1.3	$\frac{18a^3b - 12a^2b^2}{-3ab}$ **A** $= -6a + 4ab$	✓ $-6a$ ✓ $+4ab$ (2)
3.2	$-3p^2q$ **A/CM** $= -3(-1)^2(4)$	✓ substitution/vervanging ✓ answer/antwoord

	$= -12$	(2)
3.3	$5^{x-2} = 125^{-x-6}$ **A/CM** $5^{x-2} = (5^3)^{-x-6}$ $5^{x-2} = 5^{-3x-18}$ $x - 2 = -3x - 18$ $4x = -16$ $x = -4$	✓ same base/ dieselfde basis ✓✓ distribution by exponent/ verspreiding deur eksponent ✓ equating exponents/ eksponente gelyk te stel ✓ additive inverse/ byvoeging inverse ✓ answer/antwoord (6)
		[15]
QUESTION/VRAAG		
4.1.1	Charlie **A**	✓ answer/antwoord (1)
4.1.2	14 seconds **A**	✓ answer with units/ antwoord met eenhede (1)
4.1.3	Albert reaches 60m at 10s Charlie reaches 60m at 14s ∴ Charlie took 4s more than albert to reach 60m **A**	✓ answer with units/ antwoord met eenhede (1)
4.1.4	Total average speed $= \frac{100}{12} + \frac{100}{14} + \frac{100}{17}$ $= 8{,}33 + 7{,}14 + 5{,}88$ $= 18{,}35$m/s	✓ for all speeds ✓✓✓ answer for each speed ✓ answer with/without units/ antwoord met/sonder eenhede (5)

4.2	**A**  	✓✓✓ all three points/ al drie punte ✓ accurately joining points/ punte akkuraat verbind (4)
		[12]