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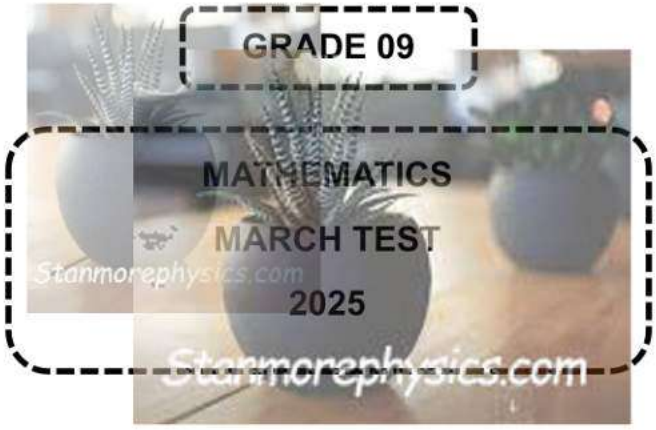
education

Department:
Education
PROVINCE OF KWAZULU-NATAL

ZULULAND DISTRICT: GENERAL EDUCATION AND TRAINING (GET)

Helping Our Schools Transform Little People into Future Giants



Marks : 50

Duration : 1 hour

Read the following instructions carefully before answering the questions:

1. This question paper consists of **7 pages** including the cover page.
2. This question paper consists of **FIVE** questions. Answer **ALL** questions.
3. Clearly show **ALL** calculations that you have used in determining your answer.
4. Answer Questions 2 – 5 in the spaces provided.
5. Answer only will not necessarily be awarded full marks.
6. An approved scientific calculator (non-programmable and non-graphical) may be used, unless stated otherwise. Write neatly and legibly.

Circuit	
School Name	
Class (e.g. 9A)	
Name & Surname	

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Section A

Question 1 [10]

Four options are provided as answers to the following questions. **Circle** the letter corresponding to correct answer.

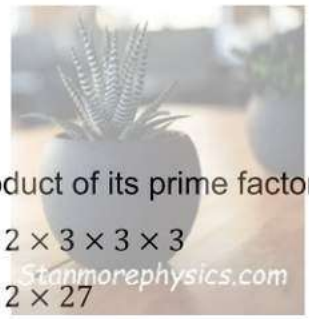
1.1. Which one of the following numbers is an irrational number? (1)

A. $1,\dot{7}$

B $\sqrt[3]{-8}$

C $\sqrt{5}$

D $\sqrt{1\frac{7}{9}}$



1.2. 216 as a product of its prime factors is? (1)

A $2 \times 2 \times 2 \times 3 \times 3 \times 3$

B $2 \times 2 \times 2 \times 27$

C 8×27

D $8 \times 3 \times 3 \times 3$

1.3. Calculate: $6 + 6 \div 2 - 6 \times (-2) =$ (1)

A 21

B 18

C 12

D 0

1.4. $8 \times [(-9) + (-7)] =$ (1)

A -128

B 128

C -79

D -4

1.5. $\sqrt{36} - \sqrt{4} \times \sqrt[3]{125} =$ (1)

A 250

B -20

C 20

D -250

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1.6. Complete: $(-2p^3t)^3 =$

A $-8p^6t^6$

B $-8p^9t^3$

C $-8p^3t^6$

D $8p^9t^3$

1.7. The number $0{,}00000144$ in scientific notation is…

A $0{,}144 \times 10^{-9}$

B $1{,}44 \times 10^{-9}$

C $0{,}144 \times 10^{-6}$

D $1{,}44 \times 10^{-6}$

1.8. In the sequence: $\mathbf{2}; \mathbf{5}; \mathbf{8}; \ldots\ldots$ the next three terms are:

A $11; 14; 17$

B $11; 14; 16$

C $12; 14; 17$

D $12; 14; 16$

1.9. In the sequence $\mathbf{3}; \mathbf{8}; \mathbf{13}; \mathbf{18}$ ... ... The rule for the pattern is:

A $T_n = 3n - 2$

B $T_n = 3n + 2$

C $T_n = 5n - 2$

D $T_n = 5n + 2$

1.10. In the pattern below, the next diagram will have __ black tiles.

A 15

B 20

C 25

D 30

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Section B

Question 2 **[9]**

2.1. Complete:

2.1.1. ___ is the smallest natural number (1)

2.1.2. ___ is the smallest prime number (1)

2.2. Using prime factorisation, determine the HCF and the LCM of 84 and 96. (3)

2.3. The distance between Sandton to Pretoria is 42 km and the Gautrain covers this distance in 11 minutes. If average speed remains the same, how long will it take the Gautrain to cover Pretoria and Kempton Park which is 51 km apart? Leave your answer in hours. (4)

Question 3 **[10]**

Without using a calculator, calculate:

3.1. $36(-50+14) =$ (2)

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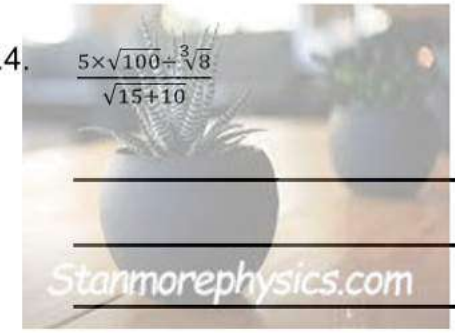
3.2. $-(-4) \times (-2)$ (2)

3.3. $\frac{-2(3)+7}{18 \div (0-6)} \times (-3)$ (3)

3.4. $\frac{5 \times \sqrt{100} \div \sqrt[3]{8}}{\sqrt{15+10}}$ (3)



Question 4 **[11]**

Simplify the following and leave your answers with a positive exponent:

4.1. $p^3 \times p^2$ (2)

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4.2. $3a^{-3}b^{-2} \times a^2b^4$ (3)

4.3. $\frac{3b^3 \times 4b^4}{(-2b^2)(-3b^8)}$ (3)

4.4. Solve for the unknown $2^{x+3} = \frac{1}{16}$ (3)

Question 5 **[10]**

5.1. Write down the next three terms in the sequence: **3; 8; 13; 18; ….; …….** (2)

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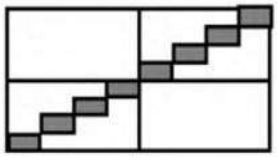
5.2. Study the table below and fill in the missing **values:** (3)

Position	1	**2**	3	4	n^{th}
Tringle					
Value				**10**	$\frac{n(n+1)}{2}$

5.3. Study the following design

1 2



3

5.3.1 How many shaded rectangles are there in design 5, 6 and 7? (3)

5.3.2. Determine the number of shaded rectangles in design n? (2)

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GRADE 09

MATHEMATICS
MARCH 2025
MARKING GUIDELINE

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MARKS : 50

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This marking guideline consists of **4 pages** including the cover page

IMPORTANG INFORMATION

- This is a marking guideline. In instances where learners have used different but mathematically sound strategies to solve problems, they (learners) should be credited marks accordingly.
- Underline errors committed by learners and apply Consistent Accuracy (CA) marking.

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Section A		
Question 1		**[10]**
1.1.	C ✓	(1)
1.2.	A ✓	(1)
1.3.	C ✓	(1)
1.4.	A ✓	(1)
1.5.	No option award a mark for all learners.	(1)
1.6.	B ✓	(1)
1.7.	D ✓	(1)
1.8.	A ✓	(1)
1.9.	C ✓	(1)
1.10.	B ✓	(1)

Section B			
Question 2			**[09]**
2.1.1.	1 ✓	Answer: 1 mark	(1)
2.1.2.	2 ✓	Answer: 1 mark	(1)
2.2.	$2 \times 2 \times 3 \times 7 = 84$ $2 \times 2 \times 2 \times 2 \times 2 \times 3 = 96$ ✓ HCF=$2 \times 2 \times 3 = 12$ ✓ LCM=$2^5 \times 3 \times 7 = 672$ ✓	Both factorization: 1 mark HCF: 1mark LCM: 1 mark	(3)
2.3.	$speed = \frac{distance}{time}$ $= \frac{42km}{0{,}5hours}$ ✓ $= 84km/hour$ ✓ $\therefore Time = \frac{distance}{speed}$ $= \frac{84km}{84km/h}$ ✓ $= 1\ hour$ ✓	Dividing : 1mark $84km/hour$: 1 mark Dividing: 1mark 1 hour: 1 mark	(4)

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Question 3			**[10]**
3.1.	$36(-50+14)$ $= 36(-36)$ ✓ $= -1296$ ✓	Addition: 1 mark Answer: 1 mark	(2)
3.2.	$-(-4)\times(-2)$ $= 4\times(-2)$ ✓ $= -8$ ✓ OR $-(4\times 2)$ ✓ $= -8$ ✓	Simplification: 1 mark Answer: 1 mark	(2)
3.3.	$\frac{-2(3)+7}{18\div(0-6)}\times(-3)$ $= \frac{-6+7}{18\div(-6)}\times(-3)$ ✓ $= \frac{1}{-3}\times(-3)$ $= -\frac{3}{-3}$ ✓ $= 1$ ✓	Simplification: 1 mark Simplification: 1 mark Answer: 1 mark	(3)
3.4.	$\frac{5\times\sqrt{100}\div\sqrt[3]{8}}{\sqrt{15+10}}$ $= \frac{5\times 10\div 2}{\sqrt{25}}$ ✓ $= \frac{5\times 5}{5}$ or $\frac{50\div 2}{5}$ ✓ $= 5$ ✓	Square, cube roots & adding: 1 mark Simplification: 1 mark Answer: 1 mark	(3)

Question 4			**[11]**
4.1.	$p^3\times p^2$ $= p^{3+2}$ ✓ $= p^5$ ✓	Simplification: 1 mark Answer: 1 mark	(2)
4.2.	$3a^{-3}b^{-2}\times a^2b^4$ $= 3a^{-3+2}b^{-2+4}$ ✓ $= 3a^{-1}b^2$ ✓ $= \frac{3b^2}{a}$ ✓	Simplification: 1 mark Simplification: 1 mark Answer: 1 mark	(3)
4.3.	$\frac{3b^3\times 4b^4}{(-2b^2)(-3b^8)}$ $= \frac{12b^{3+4}}{6b^{10}}$ ✓ $= \frac{12b^7}{6b^{10}}$ $= 2b^{-3}$ ✓ $= \frac{2}{b^3}$ ✓	Simplification: 1 mark Simplification: 1 mark Answer: 1 mark	(3)
4.4.	$2^{x+3} = \frac{1}{16}$ $2^{x+3} = 16^{-1}$ ✓ $2^{x+3} = 2^{-4}$ ✓ $\therefore x+3 = -4$ $x = -7$ ✓	Simplification: 1 mark Simplification: 1 mark Answer: 1 mark	(3)

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Question 5			**[10]**
5.1.	$23; 28$ ✓✓	Answer: 1 mark Answer: 1 mark	(2)
5.2.	$1; 3; 6$ ✓✓✓	Answer: 1 mark Answer: 1 mark Answer: 1 mark	(3)
5.3.1.	$32; 64; 128$ ✓✓✓	Answer: 1 mark Answer: 1 mark Answer: 1 mark	(3)
5.3.2.	$T_n = 2^n$ ✓✓ Or $T_n = 2 \times 2^{n-1}$ ✓✓	Answer: 2 marks	(2)