education

Department:
Education
PROVINCE OF KWAZULU-NATAL

PROVINCIAL ASSESSMENT 2014

GRADE 9 MATHEMATICS TEST

TERM 1

MARKS: 100

TIME: 2 hrs

PROVINCE _____

REGION _____

DISTRICT

_____

SCHOOL
NAME _____

NATIONAL EMIS NUMBER (9 digits)

5	0	0						

CLASS (e.g. 9A)

_____

SURNAME _____

NAME _____

GENDER (✓)	BOY		GIRL	

DATE OF BIRTH	C	C	Y	Y	M	M	D	D

This test consists of 12 pages excluding the cover page.

Instructions to learners:

1. Read all the instructions carefully.

2. Question 1 consists of TEN multiple choice questions. You must circle the letter of the correct answer.

3. Answer questions 2- 7 in the spaces or boxes provided.

4. All working must be shown.

5. The test duration is 2 hours.

6. The teacher will lead you through the practise exercise before you start the test.

7. Approved scientific calculators (non-programmable and non-graphical) may be used unless instructed otherwise.

Practise exercise:

Circle the letter of the correct answer.

Which of the numbers below is a mixed number?

0 ; $0,2$; $\dfrac{1}{8}$; $2\dfrac{1}{4}$.

A. 0

B. $2\dfrac{1}{4}$.

C. $0,2$

D. $\dfrac{1}{8}$

You have done it correctly if you have circled **B.**

The test starts on the next page

Question 1

Circle the letter of the correct answer

   1.1   What is a set of numbers formed by both rational and irrational numbers called?

        A.   Integers

        B.   Real numbers

        C.   Natural numbers

        D.   Whole numbers   (1)

   1.2   Which whole number has more than four factors?

        A.   4

        B.   9

        C.   16

        D.   27   (1)

   1.3   Which integer is three quarter way from -20 to 4?

        A.   -8

        B.   -6

        C.   -4

        D.   -2   (1)

   1.4   Complete: A cube root of -8 added to a square root of 4 is _____

        A.   0

        B.   2

        C.   -2

        D.   4   (1)

1.5 The term occupying the first position in a numeric pattern is 0. The second position is occupied by 1 and the third position is occupied by 4.
What position does the number 81 occupy?

A. 9

B. 10

C. 11

D. 12   (1)

1.6 The number of buds on a plant doubles each week. If there are six buds on the plant by the end of the second week, how many buds will be there by the end of the 6th week?

A. 24

B. 36

C. 48

D. 96   (1)

1.7 A flow diagram has output values of {0; 12; 90} if the corresponding input values are {0; 4; 10}.
What is the rule for the pattern?

A. $x^2 - \dfrac{1}{2}x$

B. Half the square of a number minus the number.

C. The square of a number minus the number.

D. $x^2 + \dfrac{1}{2}x$ (1)

1.8 Complete: The expression $15x^3 - 9x^2 + 10x - 1$ has _____

A. 15 terms and the coefficient of x is +10.

B. 4 terms and the constant term is -9.

C. 7 terms and the coefficient of x^2 is -9.

D. 4 terms and the coefficient of x is +10.   (1)

1.9 What is the value of the expression: $(4x^2 + 6x)^q$ where $q = 0$ and $x \neq 0$?

A. 0

B. 1

C. $4x^2 + 6x$

D. undefined

(1)

1.10 Which values of x make $x^3 - 2x^2 - x + 2 = 0$ true?

A. -1 ; 1 and 3

B. -1; 2 and 3

C. -1; 1 and 2

D. 1; 2 and 3

(1)

[10]

Question 2

2.1 Use prime factors to determine the LCM of 30, 40 and 50.

_____

_____

_____

_____ (4)

2.2 Write 2 hours to 180 seconds as a **ratio in its simplest** form:

_____

_____

_____ (3)

2.3 There are 4 800 learners at a school. They take part in three sporting activities namely: soccer, swimming and rugby. How many learners participate in soccer if the ratio of learners taking soccer to swimming to rugby is 5:2:3?

_____

_____

_____ (3)

2.4 25 men complete a job in 60 hours.

2.4.1 How long will it take 20 men to complete the same job?

_____

_____

_____

_____ (3)

2.4.2 Is the relationship in 5.3.1 above a direct or indirect proportion?

_____ (1)

[14]

Question 3

3.1 If x and y are integers, state with reasons if the following statement is true or false: $x - y = y - x$ if $x \neq y$

_____

_____ (2)

3.2 Simplify the following expression:

$$100 \times (-2p) + 50p \div (-50)$$

_____

_____

_____ (3)

3.3 A building has 12 floors. Four of these floors are below the ground level. The ground floor is labelled 0. The first floor above the ground is labelled +1. The first floor below the ground floor is labelled -1.

3.3.1 Write a number sentence for the following movements of Selby with the lift:
Selby enters the lift at the 5th floor. The lift goes two floors up and then 7 floors down. Selby then goes out of the lift.

(3)

3.3.2 In which floor did Selby move out of the lift?

_____ (1)

3.3.3 State with reasons if the following movement is possible or not:

$+4 - 5 + 8 - 12$

_____

_____

_____ (2)

[11]

Question 4

4.1 Complete the following table with the correct values A, B, C and D.

Common fraction	Decimal fraction	Percentage
A = _____	1,5	B = _____
C = _____	D = _____	40%

(4)

4.2 Work out: $(3,5 - 0,5) \times (5,75 + 1,25)$

_____

_____ (2)

4.3 Calculate: $3,6 \div 1,2$

_____

_____ (2)

4.4 Calculate: $\dfrac{2a}{5} + \dfrac{2}{3} \times 6a$

_____

_____ (3)

4.5 A man uses a fifth of his salary on transport, a third on groceries and saves the rest.

4.5.1 What fraction does the man save?

_____

_____

_____ (3)

4.5.2 If the man earns R1500, how much does he spend on transport?

_____

_____ (2)

[16]

Question 5

5.1 Complete the following patterns
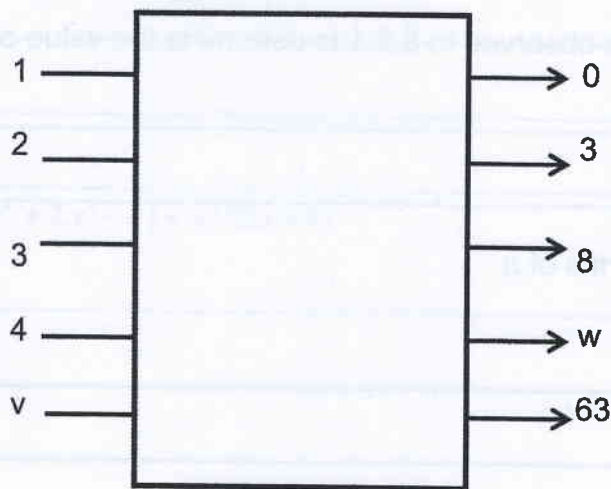
    5.1.1 1; 2; 4; 7; 11; ___

    _____ (1)

    5.1.2 0,25; 2,5; 25; 250; ___

    _____ (1)

5.2 Use the flow diagram to answer the questions below.

    5.2.1 Determine the output w.

    _____

    _____ (2)

    5.2.2 Determine the input v.

    _____

    _____ (2)

    5.2.3 Write **in words** the relationship between the input and the output.

    _____

    _____ (2)

5.3 Tina is making beadwork. Her bead patterns are recorded in the table below.

Pattern Number	1	2	3	20	q
Number of beads	2	5	10	p	n

5.3.1 Write 2, 5 and 10 in terms of 1, 2 and 3 respectively.

_____

_____

_____ (3)

5.3.2 Use the pattern observed in 5.3.1 to determine the value of p

_____

_____ (2)

5.3.3 Express n in terms of q

_____

_____

_____ (2)

[15]

Question 6

6.1 Calculate and write answers in scientific notation:

$0,004 + 3 \times 10^{-3}$

_____

_____ (3)

6.2 Simplify:

6.2.1 $\dfrac{(ab^2c)^3(2a^2)^2}{2a^5(b^3c)^2}$

_____

_____

_____ (4)

6.2.2 $3(x^3 + 2x^2 - x) + x^2(3x + 6)$

_____

_____

_____ (3)

6.2.3 $5(p-5)^2 - 7(p+4)(2p-3)$

_____

_____

_____

_____ (5)

[15]

Question 7

7.1 Factorise:

7.1.1 $2x^2y + 4xy^2$

_____

_____ (3)

7.1.2 $2x^2 + 20x + 42$

_____

_____ (3)

7.2 Solve:

7.2.1 $\dfrac{(x-2)}{4} - \dfrac{2x}{5} = 3$

_____

_____

_____

_____ (3)

7.2.2 $2x^2 - 32 = 0$

_____

_____

_____ (3)

7.2.3 $2^x = 32$

_____

_____ (2)

7.3 Busi's age is three times the age of Vusi. In six years' time, their combined ages will be 18. What are their ages now?

_____

_____

_____

_____

_____ (5)

[19]