UNIVERSITY OF FORT HARE

MATHEMATICS EDUCATION 4

ENGLISH/ISIXHOSA

MEE 414E

SUPPLEMENTARY EXAMINATION

JUNE

YEAR 2023

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Time: 3 hours

Subject: Mathematics: English/isiXhosa Paper

Marks: 100

This paper consists of 12 pages including the cover page

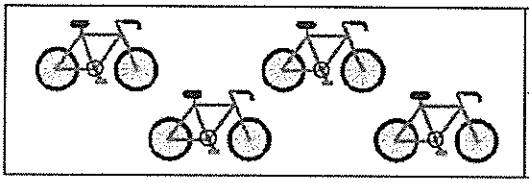
Internal Examiners	Internal Moderator	External Moderator
Ms. K.Hackmack	Ms. B. Williams	Dr. P. Hlam

INSTRUCTIONS

Please read the instructions carefully. You have 10-minute reading time. You need to answer all the questions in your examination book. You can use the last page of the examination book for your working out but please mark it rough work. You may answer any question first.

Section 1: Multiplication

1. Draw the t-table in your exam book and complete the table. (2 marks)



How many bicycles?	
How many wheels?	

bicycle	1	2	3	4	5	6	7	8	9	10
wheels	2	4								

3 bicycles, how many wheels?		6 bicycles, how many wheels?	
5 bicycles, how many wheels?		10 bicycles, how many wheels?	

2. Using the bicycle problem in question 1, if there were 100 bicycles how many wheels would there be? (2 marks)

3. Which multiplication property is shown in the following problem? (1 mark)
   $(9\times2)\times6=9\times(2\times6)(9\times2)\times6=9\times(2\times6)$

a) Multiplicative property
b) Distributive property
c) Associative property
d) Commutative property

4. Which sentence shows the associative property (1 mark)
   a) 19x6 = 5x5
   b) 6 x (3x2) = (6x2) x 3
   c) 3x9 = (3x3) x 3
   d) 4x0 = 4+0

5. Which property is being illustrated in the equation below? (1 mark)

5 x 10 = 10 x 5

a) Associated Property
b) Distributive Property
c) Reasoning Property
d) Commutative Property

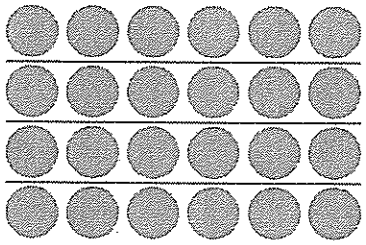
6. Explain the difference between absolute and relative thinking as it relates to multiplication. (4 marks)

7. You provide the following problem to your learners in Grade 3, 48 ÷ 6. Explain the method that you would use to encourage your learners to solve the problem. (4 marks)

8. One of the ways in which we teach learners about multiplicative thinking is through the use of word problems. Provide a detailed explanation of how you would teach the following word problem in your Grade 3 classroom. Please incorporate the 3 key principles of designing a multiplicative lesson. (20 marks)

Buyelwa makes pots. He glues on 3 legs to each pot. Buyelwa has 27 legs. How many pots can he make?

9. Look at the collection of dots and answer the questions

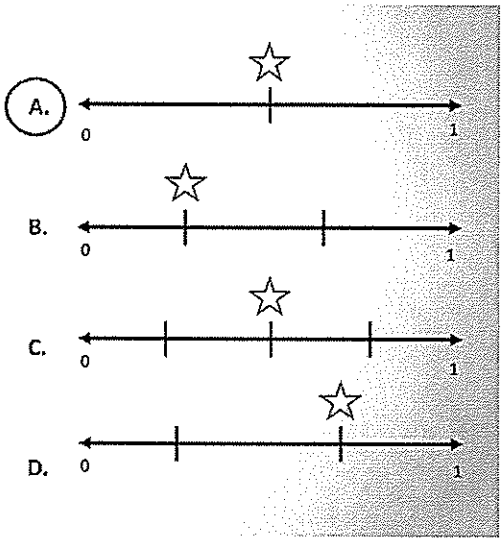


a) What is the term given to this piece of equipment that we use to teach multiplication? (1 mark)
b) What multiplication family facts would you derive from these dots? (4 marks)

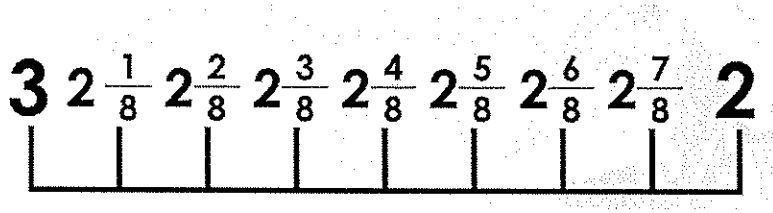
[40 marks]

Section 3: Fractions

1. Which of the following number lines has the star at one half? (1 mark)

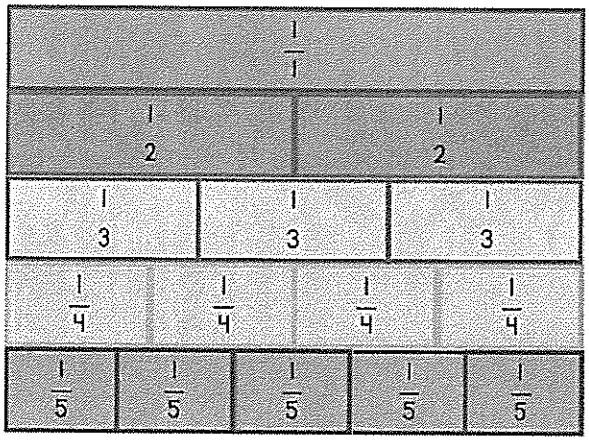


2. Have a look at the following number line and assess whether or the learner has entered the numbers correctly. Provide an explanation for your answer. (2 marks)



3. What is meant by the numerator and denominator in fractions? (2 marks)

4. You have noticed that a third-year student has produced the following piece of equipment for her crit lesson during school experience.



The student is not too sure what a fraction wall is and has no clue on how to use it. Her host teacher encouraged her to use it and she was too shy to explain that she did not know what this piece of equipment is and how to use it. What advice and assistance would you give the student to assist them to use and improve her lesson? (12 marks)

5. What is a fraction? (2 marks)

6. Explain why learners could potentially find fractions a challenging concept to learn. Provide a brief example what we can do as teachers to prevent these challenges. (12 marks)

7. Read the following word problem and work out the answer. (1 mark)
   Tina works 15 hours a week (Monday to Friday). Last week she worked 3 1/2 hours on Monday, 4 hours on Tuesday, 2 1/6 hours on Wednesday and 1 1/2 on Thursday. How many hours did she work on Friday? .

8. A teacher asks a learner what fraction of the objects was shaded in black in the learner said one third.

   a) What error is the learner making? (2 marks)

b) How would you assist this learner to understand the concept of fractions a bit better? Please provide detailed practical steps and not broad general statements. (6 marks)

[40 marks]

Section 3: Proficiency in mathematics, history, word problems and differentiation.

Multiple Choice (3 marks)

1. Which strategic competence(s) are you mainly focusing on when you drilling and repeatedly use the bonds of 10 and 20?

   You only need to write the answer a,b,c or d etc for the multiple choice questions.

   a) Conceptual Competence
   b) Procedural Competence
   c) Strategic Competence
   d) Conceptual and Procedural Competence

2. Read the following word problem. What category does this word problem fit?

Moeketsi eats some sweets. He gave 6 to Mahlodi. Now he has 8 sweets left. How many did he start with?

   a) Equalize, join, result unknown
   b) Change, separate, start unknown
   c) Compare, join, result unknown
   d) Compare, join, start unknown

3. Which of the following is not an example of differentiated instruction?

a) Plan lessons with different learning styles taken into consideration.
b) Use different learners interests when you develop the lesson.
c) Make use of a variety of group work situations.
d) Do not expect as much from a learner who is struggling in maths.

4. True or false (4 marks)
   a) Conceptual Understanding will not make the mistake of swopping the numbers around in a subtraction problem. For example if the problem is 7 -5 then having conceptual understanding will prevent them from doing 5 – 7.
   b) The Lembombo bone is the oldest known mathematics artifact found in Africa. It was used to measure the fields.
   c) Reading a map is an example of mathematics.
   d) The Western World uses the Arabic number system.

5. Not all the learners are at the same level in mathematics. Please explain how you would use differentiation to cater for the slower learners in your classroom. Please give practical examples. (10 marks)

6. Explain what the difference between numeracy and mathematics is. (2 marks)

7. Provide 1 example of a situation in the world where you use numeracy. (1 mark)

[20 marks]

Total 100 marks

End of Examination