



**NCDC**

*NATIONAL CURRICULUM  
DEVELOPMENT CENTRE*

**End of Year Sample  
Assessment Items for S.1 and S.2**

**MATHEMATICS**

**2022**

## **SAMPLE ITEMS OF MATHEMATICS FOR S1 AND S2**

The items set should be based on Resources and Scenarios.

The S1 and S2 assessment papers should not take more than 1 and a half hours.

The assessment paper should have two sections:

1. Short response items
2. Extended response items

The number of items in each section for S1 and S2 will be determined by the subject teacher keeping in mind that the duration of the paper shall not be more than one and a half hour( $1\frac{1}{2}$ hrs).

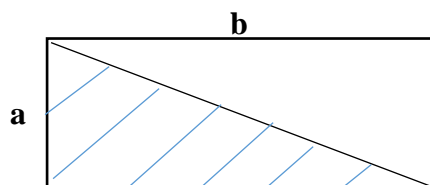
### **Short Response Items**

1. Draw an abacus and illustrate this expression  $4 \times 8^4 + 2 \times 8^2 + 4 \times 8^0$  on it.  
(The learning outcome being assessed is: identifying numbers in any base using abacus)
2. In a Geography lesson, Alex learnt that the following Mountains are in Uganda; Rwenzori and Elgon. Kenya has Mt. Longonot and Mt. Elgon. Tanzania has Mt. Mt. Meru, and Mt. Kilimanjaro.
  - (a) Draw an arrow diagram to show the relation amongst the places listed above.
  - (b) What is the domain and the range from your relation?  
(The Competency being assessed is "The learner understands and uses arrow diagrams/mappings to represent relations and functions"

## Extended Response Items

1. A garden of beans is rectangular in shape with length as  $b$  metres and width  $a$  metres as shown in figure.

Bona used the shaded part to plant his beans.



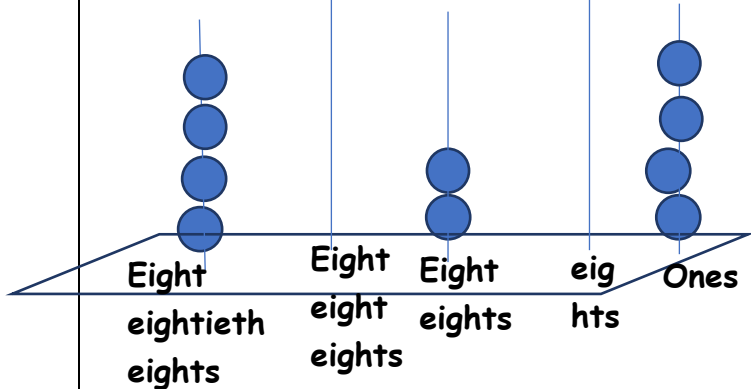
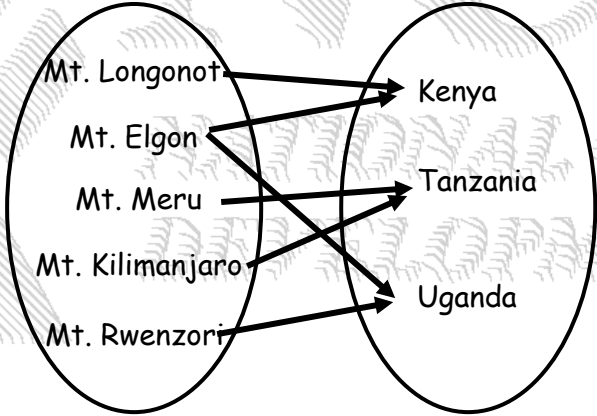
- (a) Explain how the area of the shaded part can be obtained from the rectangular Garden.
- (b) Write an expression in terms of the area ( $A$ ),  $a$  and  $b$  for the area of the triangular portion of the garden.
- (c) The area of the portion you shaded in (c) is  $464.52 \text{ m}^2$ , the length is  $15.24 \text{ m}$ . What is the dimension of the width?  
(The competency being assessed is "the learner understands, justifies and applies area and perimeter formulae for different figures")
2. Two learners were given a task of plotting the following points on the grid.  
 $A(0, 4)$ ,  $B(2, 2)$ ,  $C(4, 2)$ ,  $D(2, 0)$ ,  $E(4, -2)$ ,  $F(0, -1)$ ,  $G(-4, -2)$ ,  $H(-2, 0)$ ,  $I(-4, 2)$  and  $J(-2, 2)$ .

Plot the points above to form a polygon and state the equation of the line of symmetry for the figure formed.

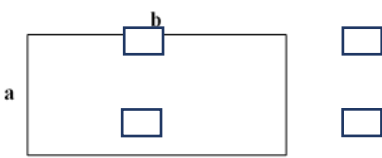
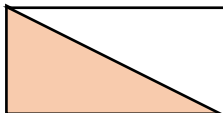
(The competency being assessed is "the makes and draws 2D and 3D shapes and explore their properties")

**End**

## Scoring Guide

QN	SOLUTION	SCORE	COMMENT
<b>Resource items</b>			
1		I Mark 1 Mark 1 Mark 1 Mark	Drawing abacus Number of balls on the spikes. Identifying the place values on each spike.
		1 Mark	Writing the correct number 40204 <sub>eight</sub>
<b>TOTAL</b>		<b>04</b>	
2	 <p>Domain is the name of mountains Range is the name countries</p> <p>(Observe learner's arrows. Some may name countries as domain, while name mountains as the range (NOTE: they may change the direction of arrows)).</p>	1 Mark 1 Mark 1 Mark 1 Mark	For correctly mapping. For identifying that Mt. Elgon belongs to two countries. States the correct domain. States the correct range. Score as above.

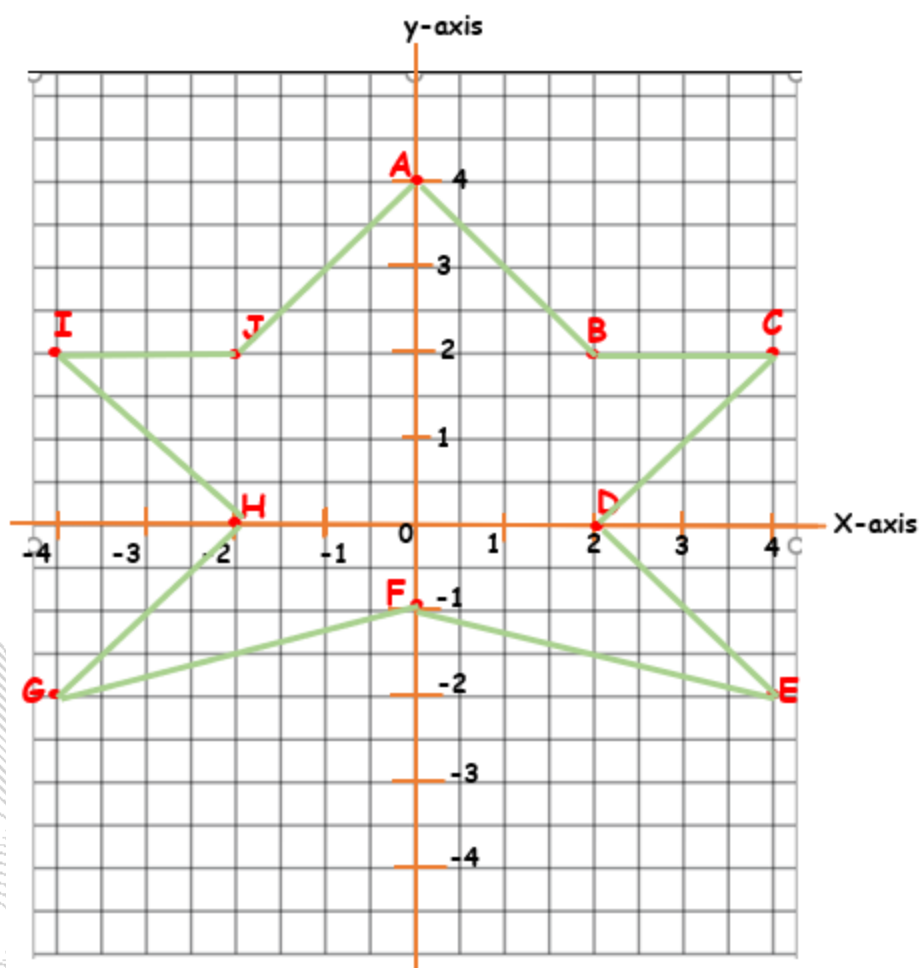
## Responses to Situation Items

1		1 Mark	
a.	<p>The garden is in a rectangular form.</p> <p>But the rectangle has two right angled triangles. Area of each triangle is equal to half area of the rectangle.</p> <p>The area of a rectangle is obtained by <math>A = L \times W</math></p> <p><i>Area of rectangular garden is <math>ab \text{ m}^2</math></i></p>	1 Mark	Recognize the area of the
		1 Mark	rectangle.
		1 Mark	For mentioning triangle
			For mentioning
b.	<p>The rectangle has been divided into two right angled triangles hence;</p> <p><math>\text{Area} = \frac{1}{2} a \times b</math></p> <p><math>\therefore \text{Area of triangular garden is } \frac{1}{2} ab \text{ m}^2</math></p>	1 Mark	1 right angled triangle.
		1 Mark	
		1 Mark	Explains that you obtain area of the two triangles
c.	<p>Drawing the rectangle correctly with angles shown</p> <p>Drawing the diagonal</p> <p>Shading the Area of a right-angled triangle as shown below:</p>	1 Mark	after dividing the rectangle.
d.		1 Mark	
	<p><math>464.52 \text{ m}^2 = \frac{1}{2} \times 15.2 \times a</math></p> <p><math>464.52 \text{ m}^2 = \frac{15.2a}{2}</math></p> <p><math>\frac{464.52}{7.2} = \frac{15.2a}{7.2}</math></p>	2 Marks	For writing the correct expression in terms of A, a and b.
		1 Mark	Shaded part can be any portion, but shows

	$a=64.5m$  $\therefore$ the width is 64.5m	1 Mark  1 Mark	<p>meaning of the space covered which is AREA.</p> <p>For correct substitution in the formula for area of triangle. For solving and simplifying.</p> <p>For correct value. For stating it as width.</p> <p>For correct use of units.</p>
<b>TOT</b>		<b>15</b>	



b.



Equation of a line of symmetry is  $x=0$  or the y-axis

12  
Marks

Award 1  
Mark each  
for each  
coordinated  
plotted  
correctly.  
There are  
10

3  
Marks

coordinates  
A to J

1  
Mark

For joining  
points  
correctly  
to form  
polygon

1  
Mark

For  
identifying  
the line of  
symmetry  
For writing  
the correct  
equation of  
the line of  
symmetry