



**End of Year Sample
ASSESSMENT ITEMS FOR S.1 AND S.2**

MATHEMATICS

UPDATED VERSION

2022

SAMPLE ITEMS OF MATHEMATICS FOR S1 AND S2

Guidance to the teacher

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These sample test items are intended to guide teachers of Mathematics how to develop end of year assessment items for Senior One and Senior Two. They do not constitute a complete examination paper for the subject. To determine the number of items in the paper, the teacher should consider the demand of each item on the test taker and the duration an average learner can spend providing the response. Ideally, at this level, a Mathematics examination should not take more than 1 hour 30 Minutes. The teacher should benchmark on the samples provided rather than replicate them.

Below each item, the competency assessed are indicated. This is intended to remind the teacher to keep the syllabus learning outcomes in mind while developing the items.

The assessment paper should have two sections:

1. Short response items
2. Extended response items

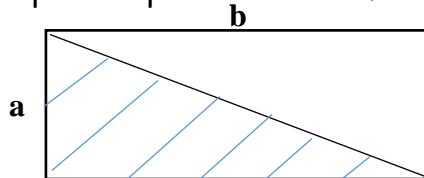
Short Response Items

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 m^2 , the length is 15.24 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")

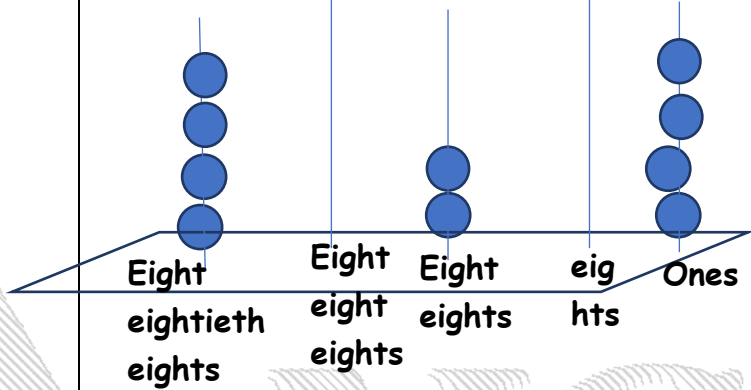
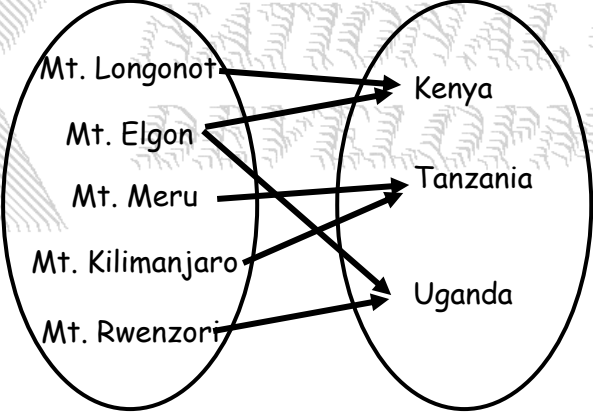
2. Two learners were given a task of plotting the following points on the grid.
 $A(0, 4)$, $B(2, 2)$, $C(4, 2)$, $D(2, 0)$, $E(4, -2)$, $F(0, -1)$, $G(-4, -2)$, $H(-2, 0)$,
 $I(-4, 2)$ and $J(-2, 2)$.

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

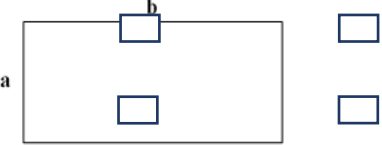
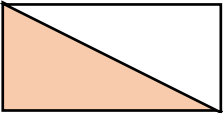
(The competency being assessed is "the makes and draws 2D and 3D shapes and explore their properties")

End

Scoring Guide

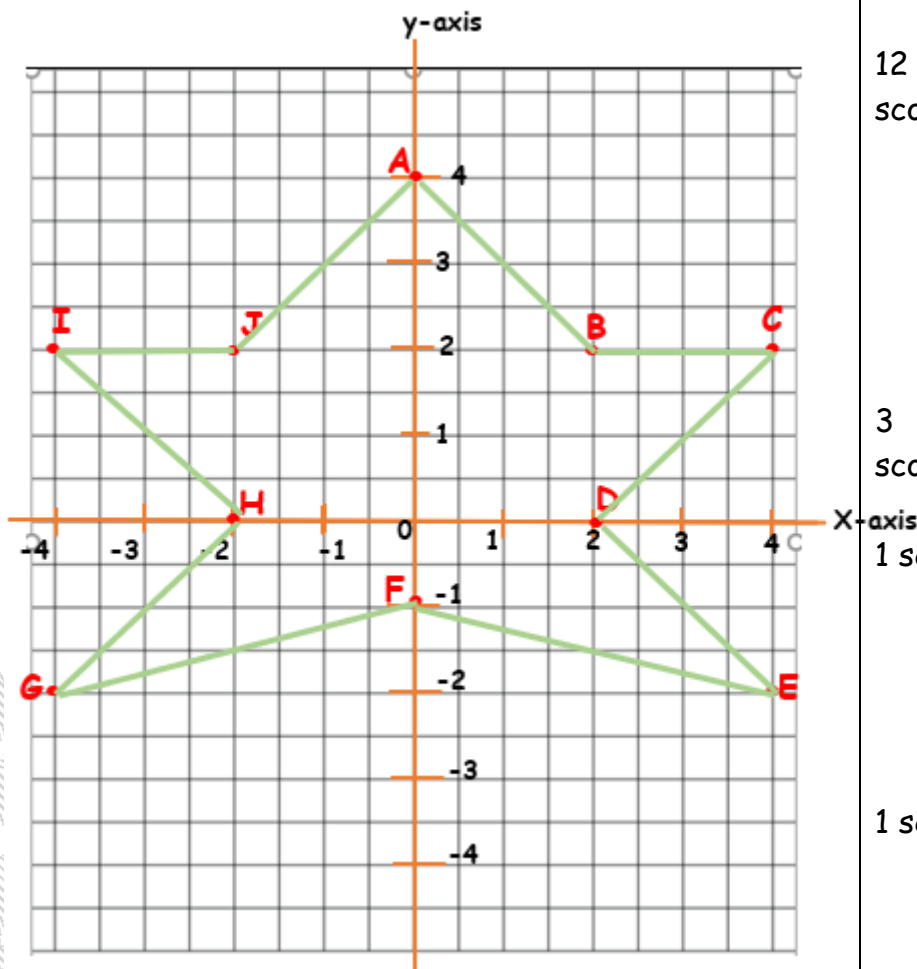
QN	SOLUTION	SCORE	COMMENT
Resource items			
1	 <p>Eight eightieth eights Eight eight eights Eight eights eigh ts Ones</p>	<p>1 score</p> <p>1 score</p> <p>1 score</p> <p>1 score</p>	<p>Drawing abacus</p> <p>Number of balls on the spikes.</p> <p>Identifying the place values on each spike.</p> <p>Writing the correct number 40204_{eight}</p>
TOTAL		04	
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>	<p>1 score</p> <p>1 score</p> <p>1 score</p> <p>1 score</p>	<p>For correctly mapping.</p> <p>For identifying that Mt. Elgon belongs to two countries.</p> <p>States the correct domain.</p> <p>States the correct range.</p> <p>Score as above.</p>

Responses to Situation Items

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

	<p>$a=64.5m$</p> <p>\therefore the width is 64.5m</p>	<p>2 scores</p> <p>1 score</p> <p>1 score</p> <p>1 score</p>	<p>any portion, but shows meaning of the space covered which is AREA.</p> <p>For correct substitution in the formular 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>
TOTAL		15	

b.



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

12 scores

Award 1 score each for each coordinate plotted correctly. There are 10 coordinates A to J

3 scores

For joining points correctly to form polygon

1 score

1 score

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