

FORM 1; MEASUREMENT

KCSE QUICK REVISION

*Compilation of Possible Questions in Mathematics Likely to be examined in
KCSE.*

*A Special Analysis of Prediction Questions that may be Tested in KCSE from this
Topic in Form 1.*

MATHEMATICS

SERIES 1

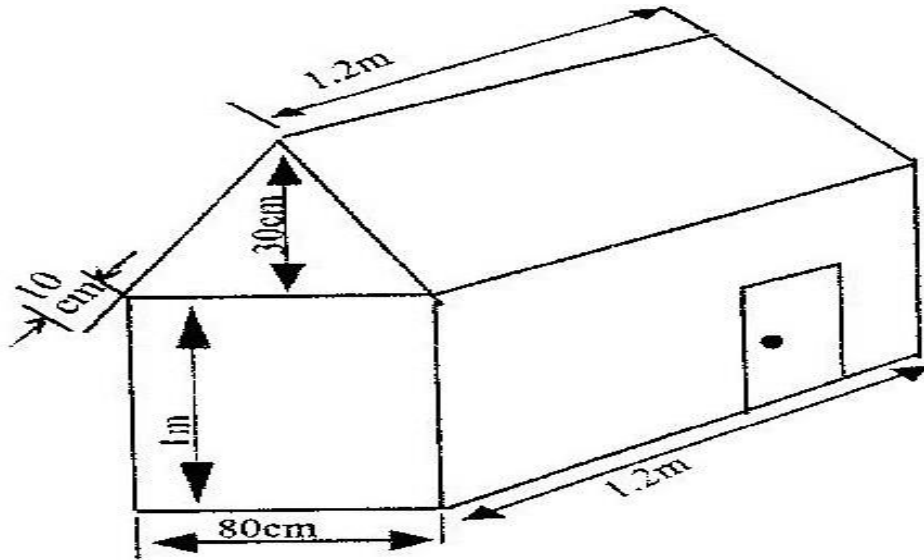
For Marking Schemes

Mr Isaboke 0746 222 000 / 0742 999 000

MWALIMU CONSULTANCY

MEASUREMENT

1. The figure below shows a portable kennel



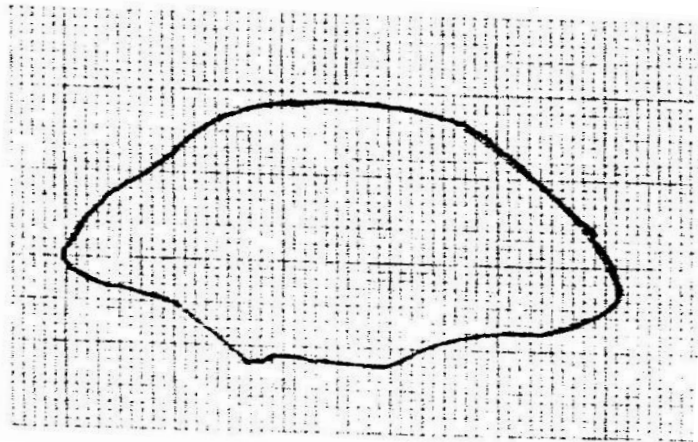
(a) Calculate

(i) The total surface area of the walls and the floor (include the door as part of the wall).

(ii) The total surface area of the roof

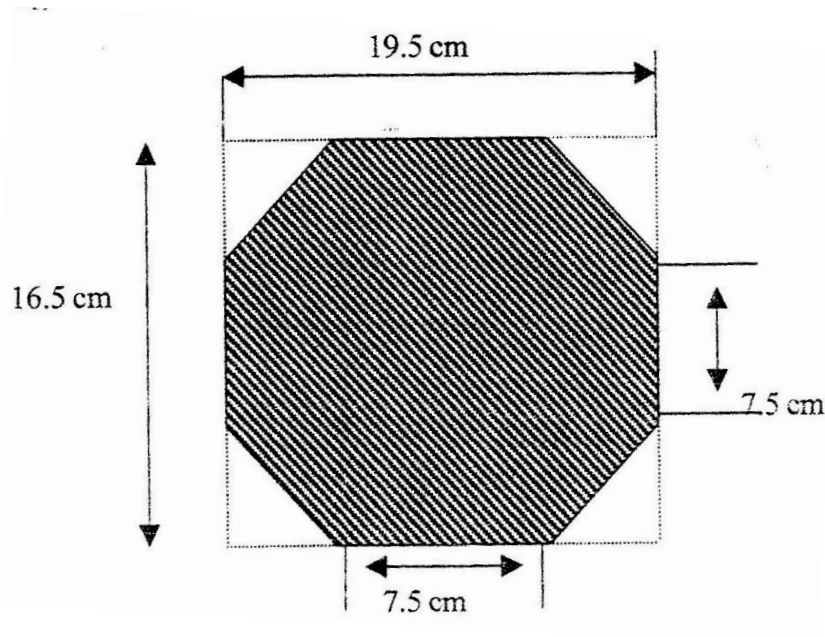
(b) The cost of roofing is Kshs 300 per square metre and that of making walls and floor Kshs 350 per square metre. Find the cost of making the kennel.

2. The enclosed region shown in the figure below represents a ranch draw to scale. The actual area of the ranch is 1075 hectares



- (a) Estimate the area of the enclosed region in square centimeters
- (b) Calculate the linear scale used

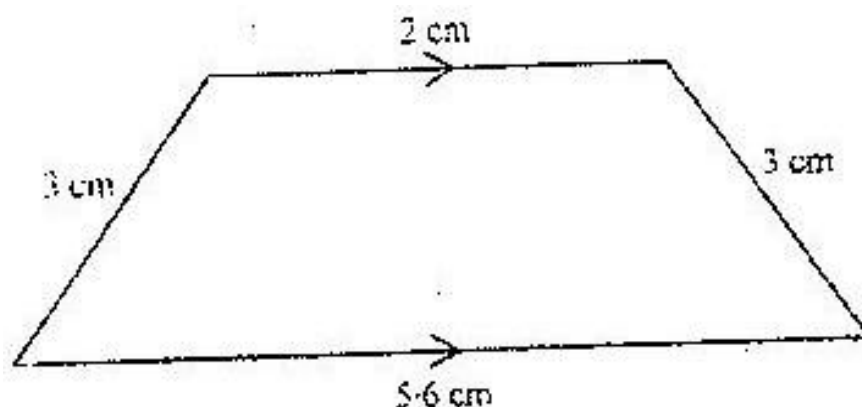
3. The figure below shows an octagon obtained by cutting off four congruent triangles from a rectangle measuring 19.5 by 16.5 cm



Calculate the area of the octagon

- 4. The length of a hollow cylindrical pipe is 6 metres. Its external diameter is 11cm and has a thickness of 1 cm. Calculate the, volume in cm^3 of the materials used to make the pipe. Take π as 3.142.
- 5. The area of rhombus is 60 cm^2 . Given that one of its diagonals is 15 cm long, calculate the perimeter of the rhombus.
- 6. A cylindrical piece of wood of radius 4.2 cm and length 150 cm is cut lengthwise into two equal pieces.
Calculate the surface area of one piece
(Take π as $\frac{22}{7}$)

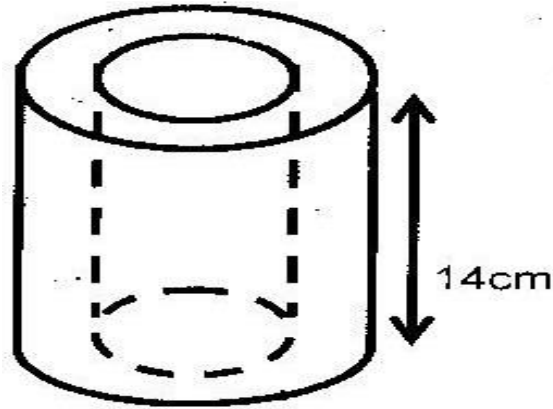
7. The diagram below (not drawn to scale) represents the cross section of a solid prism of height 8.0 cm



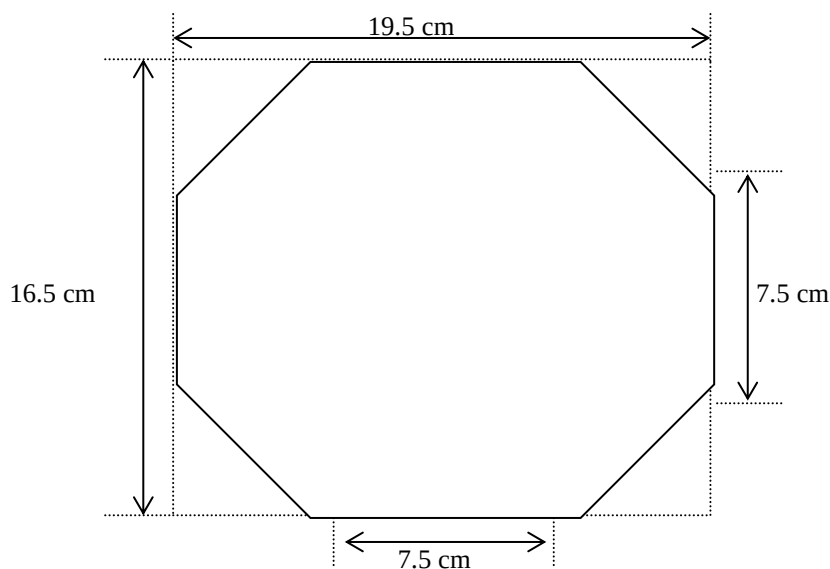
- (a) Calculate the volume of the prism
- (b) Given that the density of the prism is 5.75 g/cm^3 , calculate its mass in grams
- (c) A second prism is similar to the first one but is made of different material. The volume of the second prism is 246.24 cm^3
- (i) Calculate the area of cross section of the second prism
- (ii) Given the ratio of the mass of the first prism to the second is 2:5, find the density of the second prism.
8. A square brass plate is 2 mm thick and has a mass of 1.05 kg. The density of the brass is 8.4 g/cm^3 . Calculate the length of the plate in centimeters.
9. Two cylindrical containers are similar. The larger one has internal cross-section area of 45 cm^2 and can hold 0.95 litres of liquid when full. The smaller container has internal cross-section area of 20 cm^2
- (a) Calculate the capacity of the smaller container
- (b) The larger container is filled with juice to a height of 13 cm. Juice is then drawn from it and empties into the smaller container until the depth of the juice in both containers are equal. Calculate the depth of juice in each container.
- (c) One fifth of the juice in the larger container in part (b) above is further drawn and emptied into the smaller container. Find the differences in the depths of the juice in the two containers.

- 10.** Pieces of soap are packed in a cuboid container measuring 36 cm by 24 cm by 18 cm. Each piece of soap is similar to the container. If the linear scale factor between the container and the soap is $\frac{1}{6}$. Find the volume of each piece of soap.
- 11.** A cylindrical water tank is of diameter 7 metres and height 2.8 metres
- (a) Find the capacity of the water tank in litres
- (b) Six members of family use 15 litres each per day. Each day 80 litres are used for cooking and washing. And a further 60 litres are wasted.
Find the number of complete days a full tank would last the family
- (c) Two members of the family were absent for 90 days. During the 90 days, wastage was reduced by 20% but cooking and washing remained the same.
Calculate the number of days a full tank would now last the family
- 12.** A company is to construct parking bay whose area is 135m^2 . It is to be covered with a concrete slab of uniform thickness of 0.15m. To make the slab cement, ballast and sand are to be mixed so that their masses are in the ratio 1:4:4 the mass of 1m^3 of dry slab is 2,500 kg.
- (a) Calculate
- (i) The volume of the slab
- (ii) The mass of dry slab
- (iii) The mass of cement to be used
- (b) If one bag of cement is 50kg. Find the number of bags to be purchased
- (c) If a lorry carries 7 tonnes of sand, calculate the number of lorries of sand to be purchased
- 13.** An Artisan has 63 kg of metal of density 7000 kg/m^3 . He intends to use to make a rectangular pipe with external dimensions 12 cm by 15 cm and internal dimensions 10cm by 12 cm. Calculate the length of the pipe in metres.

14. The figure below represents hollow cylinder. The internal and external radii are estimated to be 6 cm and 8 cm respectively, to the nearest whole number. The height of the cylinder is exactly 14 cm.

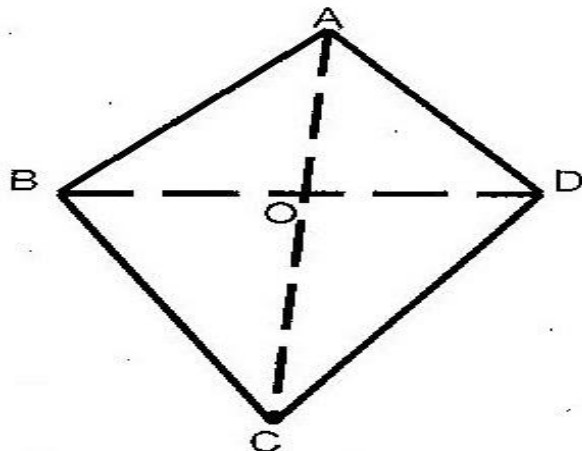


- (a) Determine the exact values for internal and external radii which will give maximum volume of the material used.
- (b) Calculate the maximum possible volume of the material used. Take the value of π to be $\frac{22}{7}$
15. Calculate the volume of a prism whose length is 25 cm and whose cross-section is an equilateral triangle of side 3 cm
16. The figure below shows an octagon obtained by cutting off four congruent triangles from a rectangle measuring 19.5 by 16.5 cm



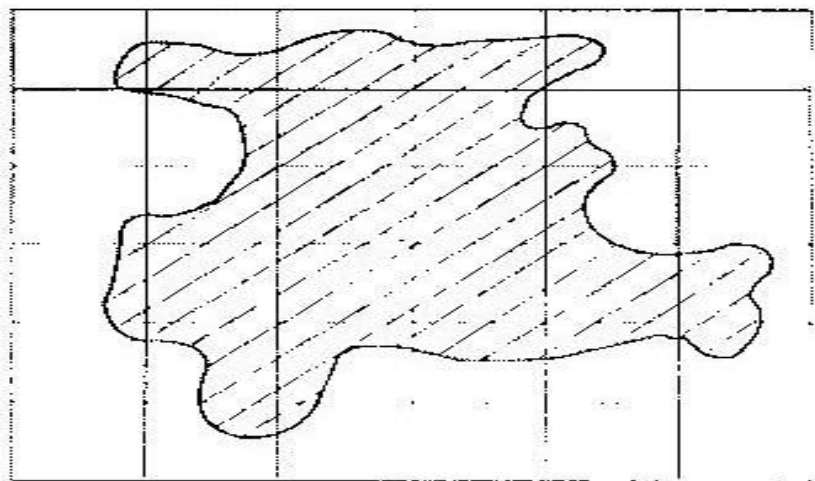
Calculate the area of the octagon

17. The figure below represents a kite ABCD, $AB = AD = 15$ cm. the diagonals BD and AC intersect at O, $AC = 30$ cm and $AO = 12$ cm.



Find the area of the kite

18. The figure below is a map of a forest drawn on a grid of 1 cm squares



- (a) Estimate the area of the map in square centimeters if the scale of the map is 1: 50, 000; estimate the area of the forest in hectares.

For Marking Schemes/Answers

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