GRAPHICAL METHODS

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 3.

MATHEMATICS

SERIES 1

For Marking Schemes

Mr Isaboke 0746 222 000 / 0742 999 000

MWALIMU CONSULTANCY

GRAPHICAL METHODS

1. The table shows the height metres of an object thrown vertically upwards varies with the time t seconds

The relationship between s and t is represented by the equations $s = at^2 + bt + 10$ where b are constants.

t	0	1	2	3	4	5	6	7	8	9	10
s		45.1						49.9			-80

(a) **(i)** Using the information in the table, determine the values of a and b

(ii) Complete the table

(b) (i) Draw a graph to represent the relationship between s and t

(ii) Using the graph determine the velocity of the object when t = 5 seconds

2. Data collected form an experiment involving two variables X and Y was recorded as shown in the table below

x	1.1	1.2	1.3	1.4	1.5	1.6
y	-0.3	0.5	1.4	2.5	3.8	5.2

The variables are known to satisfy a relation of the form $y = ax^3 + b$ where a and b are constants

(a) For each value of x in the table above, write down the value of x^3

(b) (i) By drawing a suitable straight line graph, estimate the values of a and b

(ii) Write down the relationship connecting y and x

3. Two quantities P and r are connected by the equation $p = kr^n$. The table of values of P and r is given below.

P	1.2	1.5	2.0	2.5	3.5	4.5
r	1.58	2.25	3.39	4.74	7.86	11.5

a) State a liner equation connecting P and r.

b) Using the scale 2 cm to represent 0.1 units on both axes, draw a suitable line graph on the grid provided. Hence estimate the values of K and n.

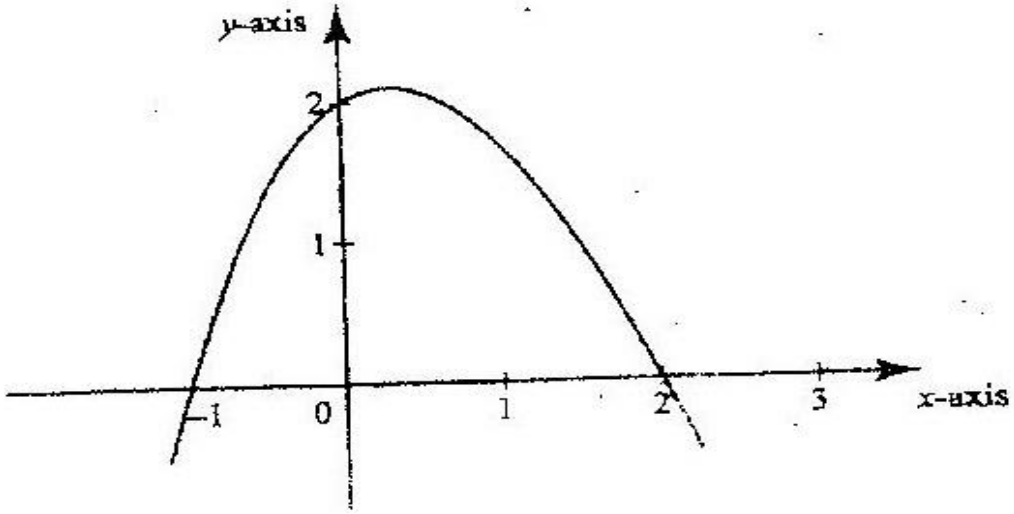
4. The points which coordinates (5,5) and (-3,-1) are the ends of a diameter of a circle centre A

Determine:

(a) The coordinates of A

The equation of the circle, expressing it in form $x^2 + y^2 + ax + by + c = 0$ where a, b, and c are constants each computer sold

5. The figure below is a sketch of the graph of the quadratic function y = k (x+1) (x-2)



Find the value of k

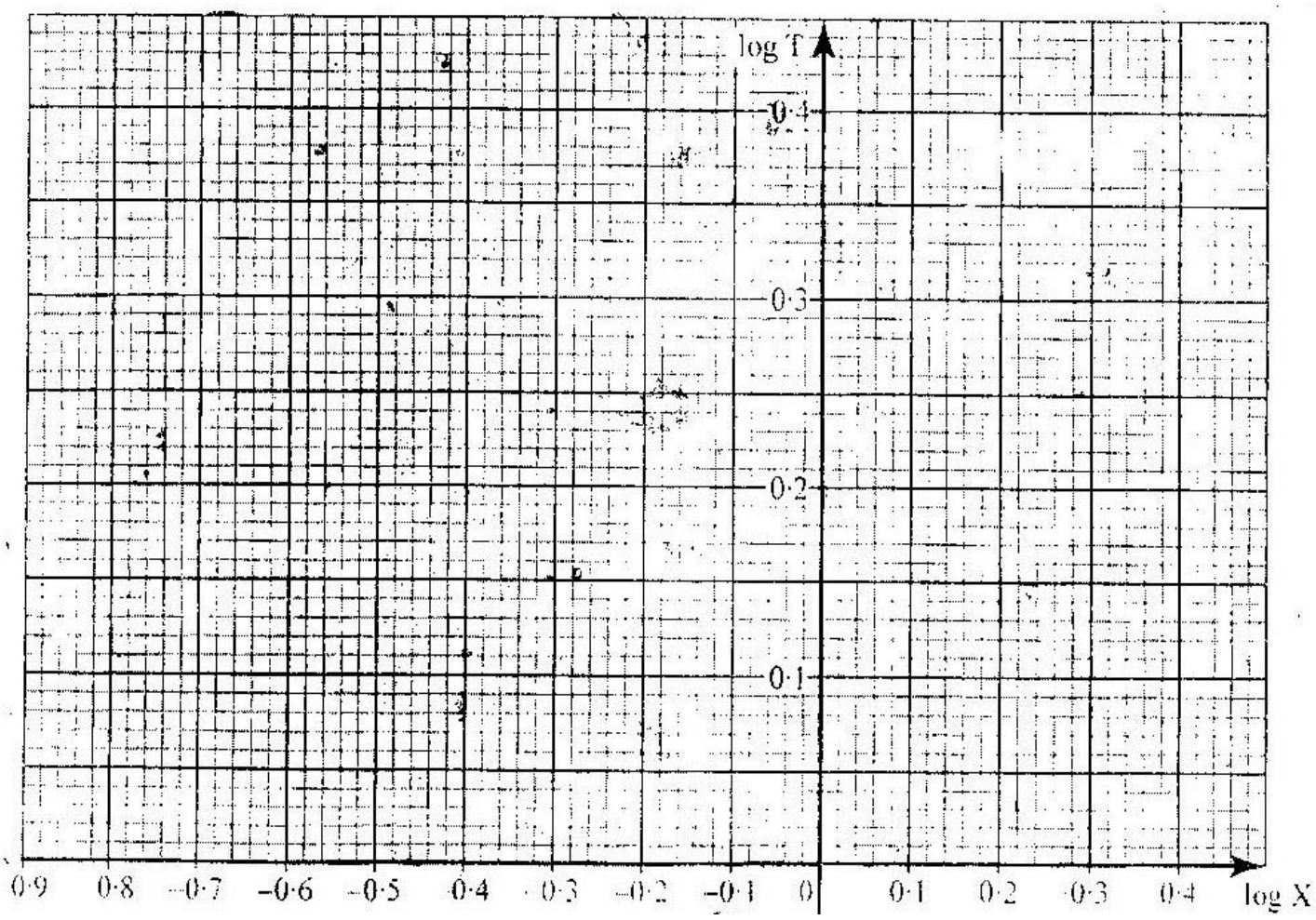
6. **The** table below shows the values of the length X (in metres) of a pendulum and the corresponding values of the period T (in seconds) of its oscillations obtained in an experiment.

X (metres)	0.4	1.0	1.2	1.4	1.6
T (seconds)	1.25	2.01	2.19	2.37	2.53

(a) Construct a table of values of log X and corresponding values of log T, correcting each value to 2 decimal places

(b) Given that the relation between the values of log X and log T approximate to a linear law of the form m log X + log a where a and b are constants

(i) Use the axes on the grid provided to draw the line of best fit for the graph of log T against log X.



(ii) Use the graph to estimate the values of a and b

(iii) Find, to decimal places the length of the pendulum whose period is 1 second.

7. Data collection from an experiment involving two variables x and y was recorded as shown in the table below

X	1.1	1.2	1.3	1.4	1.5	1.6
Y	-0.3	0.5	1.4	2.5	3.8	5.2

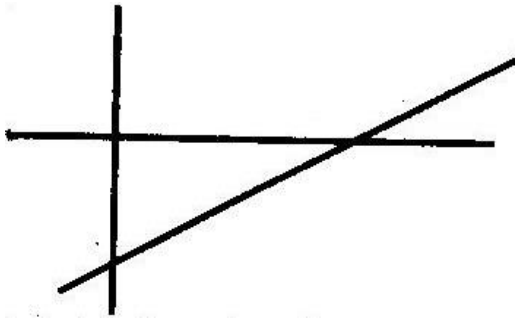
The variables are known to satisfy a relation of the form $y = ax^3 + b$ where a and b are constants

(a) For each value of x in the table above. Write down the value of x^3

(b) (i) By drawing s suitable straight line graph, estimate the values of a and b

(ii) Write down the relationship connecting y and x

8. Two variables x and y, are linked by the relation $y = ax^n$. The figure below shows part of the straight line graph obtained when log y is plotted against log x.



Calculate the value of a and n

9. The luminous intensity I of a lamp was measured for various values of voltage v across it. The results were as shown below

V(volts)	30	36	40	44	48	50	54
L (Lux)	708	1248	1726	2320	3038	3848	4380

It is believed that V and l are related by an equation of the form $l = aV^n$ where a and n are constant.

(a) Draw a suitable linear graph and determine the values of a and n

(b) From the graph find

(i) The value of I when V = 52

(ii) The value of V when I = 2800

10. In a certain relation, the value of A and B observe a relation $B= CA + KA^2$ where C and K are constants. Below is a table of values of A and B

A	1	2	3	4	5	6
B	3.2	6.75	10.8	15.1	20	25.2

(a) By drawing a suitable straight line graphs, determine the values of C and K.

(b) Hence write down the relationship between A and B

(c) Determine the value of B when A = 7

11. The variables P and Q are connected by the equation $P = ab^q$ where a and b are constants. The value of p and q are given below

P	6.56	17.7	47.8	129	349	941	2540	6860
q	0	1	2	3	4	5	6	7

(a) State the equation in terms of p and q which gives a straight line graph

(b) By drawing a straight line graph, estimate the value of constants a and b and give your answer correct to 1 decimal place.

For Marking Schemes/Answers

Contact Mr Isaboke

0746-222-000

OR

0742-999-000

FOR THE FOLLOWING;

- ✓ONLINE TUITION
- ✓REVISION NOTES
- ✓SCHEMES OF WORK
- ✓SETBOOKS VIDEOS
- ✓TERMLY EXAMS
- ✓QUICK REVISION KITS
- ✓KCSE TOPICALS
- ✓KCSE PREMOCKS
- ✓TOP SCHOOLS PREMOCKS
- ✓JOINT PREMOCKS
- ✓KCSE MOCKS
- ✓TOP SCHOOLS MOCKS
- ✓JOINT MOCKS
- ✓KCSE POSTMOCKS
- ✓TOP SCHOOLS PREDICTIONS
- ✓KCSE PREDICTIONS
- ✓KCSE REVEALED SETS

CALL/TEXT/WHATSAPP

0746 222 000 / 0742 999 000

mwalimuconsultancy@gmail.com

This is a Copyright Property of Mwalimu Consultancy Ltd.

POWERED BY MR ISABOKE