GATITU SECONDARY SCHOOL, P.O. BOX 327 – 01030, GATUNDU.
FORM 3 MATHEMATICS.   MID TERM EXAMINATION.   TERM 1 2014.
Answer all questions in this paper.

1.Draw the graph of $Y = 2x^2 + 5x - 12$ for $-8 \leq x \leq 4$.   (6mks

Use you graph to solve.

a) $2x^2 + 5x - 12 = 0$

b) $x2 + x - 6 = 0$ (4mks

c) $3 - 7x - 3x^2 = 0$

2.Temperatures to the nearest 0.1^0C are stated as a 2.7^oC   b=3.4^oC   c = 9.8^oC and d= 3.0^oC. Find the percentage error in the expressions given below.

a) $\dfrac{b}{c} - \dfrac{c}{d}$ (5mks)

b) $\dfrac{a + b}{c + d}$ (5mks

3.Three ships X Y and Z are approaching a harbor H. X is 16km from the harbor on a bearing of 090°. Y is 14km from the harbor on a bearing of 130° and Z is 26.31 km ~~from~~ to the west of Y and on a bearing of 240° from the harbor. Calculate

a)The distance between X and Y   (4mks

b)The distance of Z from the harbor.   (3mks

c)The distance between X and Z   (3mks

4.A boat speed in still water is 4km/h. The boat cruises from A to B along a river flowing at an average speed of X km/h in the direction A to B. If the distance AB is 5km and the boat takes 2hrs more on its return journey, determine X. Hence find the total time taken for the whole journey.

(10mks

5.   At a police check point the speeds in Km/h of the first 50 vehicles were recorded as follows.

Speed	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109
No of vehicles	3	1	2	5	6	11	9	8	3	2

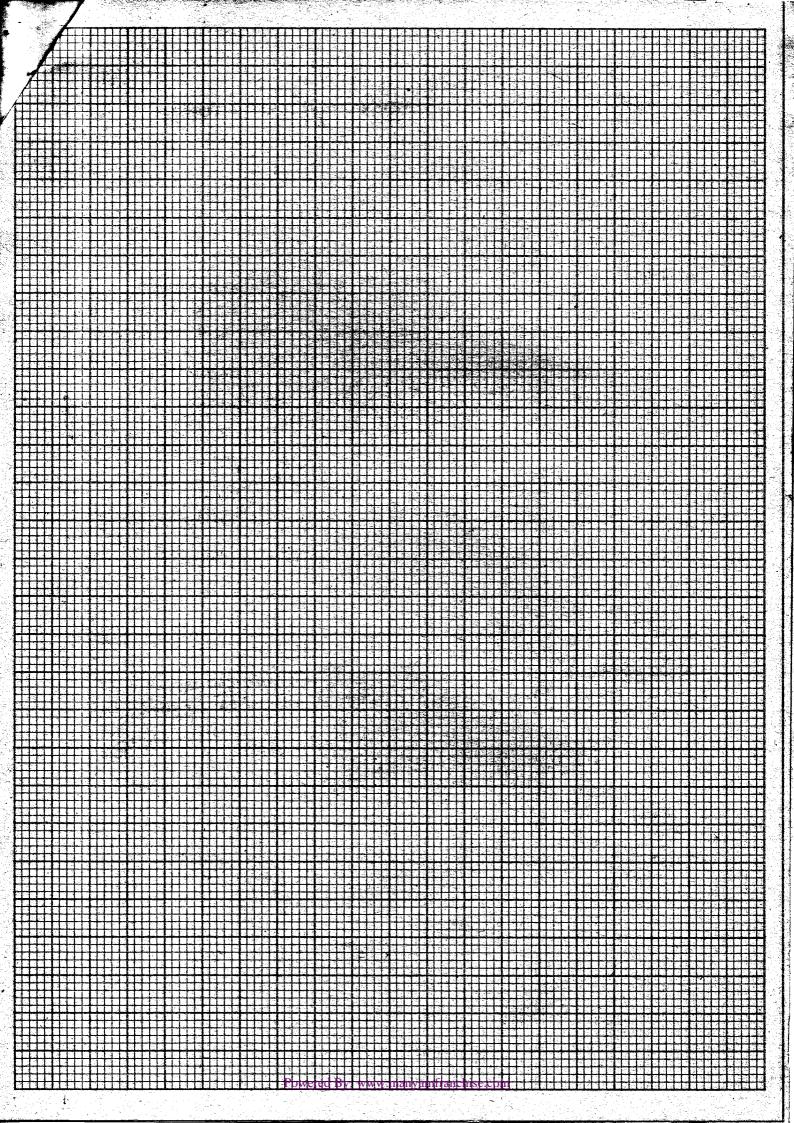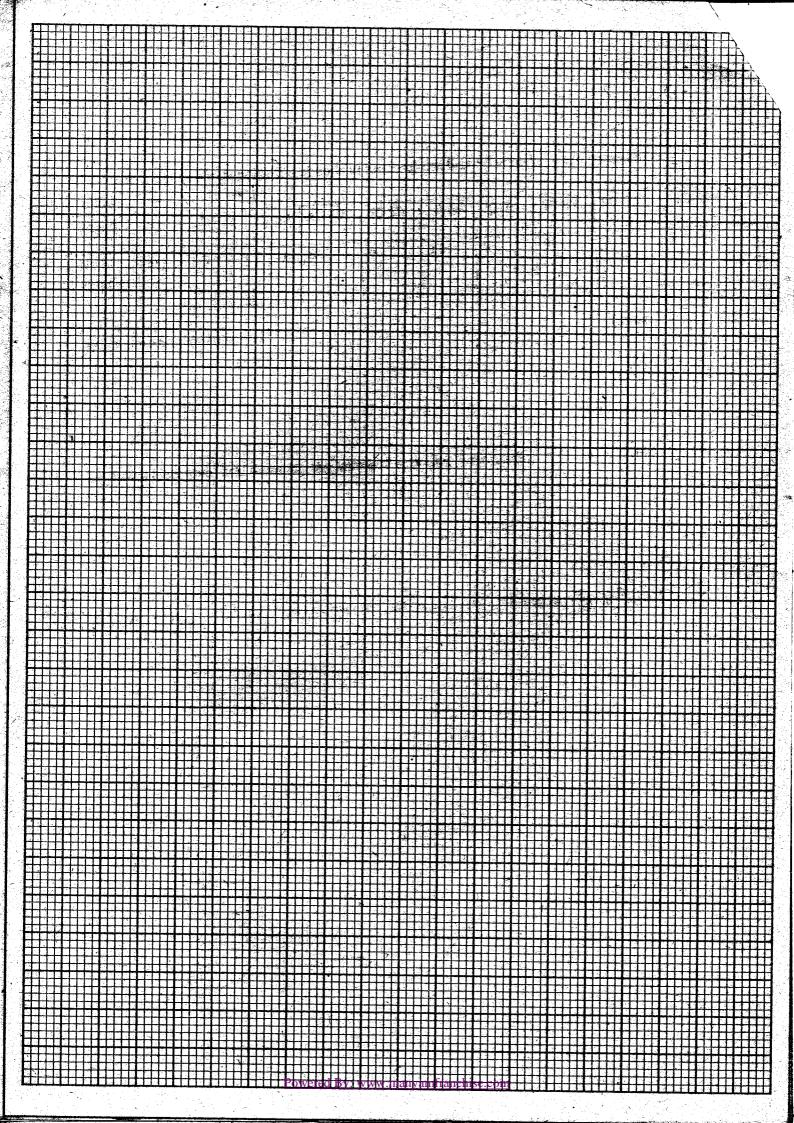a)Calculate the mean speed.   (3mks

b)Draw a histogram and ~~draw a histogram and~~ estimate the median.   (4mks

c) on the same diagram draw a frequency polygon (3mks)

c)On the same diagram, draw a frequency polygon. (3mks

6. Draw the region bounded by the inequalities (10mks

i) $y - 2x \le 1$

ii) $3y - x > -2$

iii) $2y + x < 7$

iv) $2y + x \ge 2$

7. Triangle OAB is such that $\overrightarrow{OA} = a$ $\overrightarrow{OB} = b$ C lies on $\overrightarrow{OB}$ such that $\overrightarrow{OC} : \overrightarrow{CB} = 1:1$. D lies on $\overrightarrow{AB}$ such that $\overrightarrow{AD} : \overrightarrow{DB} = 1:1$ and E lies on $\overrightarrow{OA}$ such that $\overrightarrow{OA} : \overrightarrow{AE} = 3:1$. Find

a)$\overrightarrow{OC}$ (2mks

b)$\overrightarrow{OD}$ (2mks

c)$\overrightarrow{OE}$ (2mks

d)$\overrightarrow{CD}$ (2mks

e) $\overrightarrow{DE}$ (2mks

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