

FOOCUS A365

ST CLAIRE HIGH SCHOOL – GATUNDU SOUTH

MATHEMATICS FORM 1

MID OF TERM 1 2017

Instructions to candidate

- 1. Write your name and Adm. No in the space provided.
- 2. These papers consist of two sections; Section A and section B.
- 3. Answer all questions in section A and only 5 from section B.
- 4. Write all your working on the space provided.
- 5. Marks are awarded for steps which are correctly worked.
- 6. Calculators must not be used.

Section I

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total

Section II

17	18	19	20	21	22	23	24	Total

Time: 2hrs 30 min

Grand

1	Total

SECTION 50 MARKS



 Add one thousand and fourth four to the product of one thousand and six and one hundred And eighty. (3 marks)

2. The GCD of two numbers is 17 and their LCM is 140. If one of the numbers is 20, find the other number. (3 marks)

3. Find the L.C.M of X^2 , X^4 , X^6 (3 marks)

4. Evaluate $\frac{-8 \div 2 + 12 \times 9 - 4 \times 6}{56 \div 7 \times 2}$

(3 marks)

5. Evaluate
$$\frac{3}{8}of\left\{\frac{73}{5} - \frac{1}{3}\left(\frac{11}{4} + \frac{31}{3}\right) \times \frac{22}{5}\right\}$$
 (3 marks)

6. Evaluate without using calculators or mathematical tables, leaving your answer as a simple fraction.

$$\frac{-4(-2)+(-12)\div(+3)}{-9-(15)} + \frac{-20+(+4)+(-6)}{46-(8+2)-3}$$
(4 marks)

7. A number m is such that when it is divided by 30, 36, and 45 the remainder is always 7, find the smallest possible value of m. (3 marks)

8. Which of the following number is divisible by both 3 and 4? (3 marks) 120, 744, 306, 9564, 1504, 192, 86 *and* 36.



9. What must be added to the underlined number below to make it divisible by 11, (3 marks)

8260<u>4</u>9

10. If
$$x = -2$$
, $y = -6$ and $z = 4$, find the value of $\frac{4xy}{z}$ (3 marks)

11. Show the following operation on a number line (2 marks)

$$(-7) + (-2) + (+6)$$

Hence, evaluate the value of, (-7) + (-2) + (+6) (1 mark)



13. By how much is the product of $\frac{9}{5}$ and $8\frac{1}{2}$ greater than 5? (3 marks)

14. Evaluate, $(\frac{5}{7} \times \frac{2}{3}) + (\frac{5}{6} - \frac{8}{9}) \div \frac{7}{15}$ of $\frac{5}{6}$ (3 marks)

15. The distance between two schools m and k is 2km. A market is situated between m and k one third of the distance from m and k. How far is the market from k? (3 marks)

16. A square room is covered by a number of whole rectangular slabs of sides 60cm and 42cm.

Calculate the least possible area of the room in square metres. (4 marks)



SECTION B 50 MARKS

- 17. Kinyua spent ¹/₄ of his net January salary on school fees. He spent ¹/₄ of the remainder on electricity and water bills. He spent ¹/₉ of what remained on transport. If he finally had sh.3,400, calculate
 - a) His net January salary. (5 marks)

b) Money spent on school fees. (1 mark)

c) Money spent on transport. (2 marks)

d) Money spent on electricity and water bills.

18. A minibus had 23 passengers at the beginning of a journey. Twelve passengers alighted at the first stop while 9 boarded six of those who boarded at the first stop alighted at the second stop and 12 got in. The minibus should not stop again up to the final destination. The charges from the starting point were sh. 50 up to the first stop, sh. 70 up to the second stop and sh. 85 up to the final destination.



a) How many passengers alighted at the final destination? (3 marks)

b) How many passengers were ferried by the minibus through the journey? (3 marks)

c) How much money was collected during the trip? (4 marks)

19. Find all the possible values of the missing digit(s) represented by (*) (10 marks)a) 2*6, 8*71, 8*919 are divisible by 11.



b) 396*5, 48675*, 349** are divisible by 9.

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c) 3*7, 1*43, 81*60 are divisible by 3.
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d) 93*, 85*2, 90*4 are divisible by 4.

20. Mr. Kamau wishes to buy some items for his son and daughter. The son's item costs sh. 324 while the daughter item costs sh. 220 each. Mr. Kamau would like to give each of them equal amount of money.

a) What is the least amount of money that he can send to each of them so that the money is

fully utilized for items without remainder. (5 marks)

b) How many items will each person buys. (5 marks)



21. In 2010, Musa got 750 bags of coffee from his shamba. In 2011 his yield dropped by 30% due to drought and in 2012 his yield rose by 15% over that of 2011. A bag of coffee weighs 55kg and Musa was paid sh. 7900 per tone in 2010. Thereafter the price per tone increased each year by 10%. Find his earning from coffee for each of the three years. Hence, find his total income from coffee for three years. (10 marks)

22. a) The Highest Common Factor(HCF) of 182 and x is 26 and the L.C.M of 182 and x is 1092. Determine the value of x. (3 marks)

a) Muigai had sh. P; Nzau had four times as much as Muigai. Muli had half as much as Nzau.

i) Write an expression that gives the total amount of money the three people had. (1 mark)



ii) If p = sh. 1500, how much money did they have altogether? (3 marks)



Find the values of x, y, w, and z giving reason. (4 marks)



23. Five companies employed 2340, 3455, 675, 960 and 1350 workers. The first company laid off 1 worker for every 5 workers, while the other three recruited 2 new workers for every 3.

a) What was the total number of workers at the beginning? (2 marks)

- b) How many people:
 - i) Lost job (3 marks)

ii) Got job (3 marks)

c) What was the total number of workers finally? (2 marks)



24. a) The masses in kilograms of 20 bags of maize were; 90, 94, 96, 98, 99, 102, 105, 91, 102, 99, 105, 94, 99, 90, 94, 99, 98, 96, 102, and 105.

i. State the mode. (1mk

ii. Calculate the mean mass per bag (4 marks)

b) A fruit vendor bought 1948 oranges on a Thursday and sold 750 of them on the same day. On Friday, he sold 240 more oranges than on Thursday. On Saturday, he bought 560 more oranges. Later the day, he sold all the oranges he had at a price of Ksh. 8 each. Calculate the amount of money the vendor obtained from the sales of Saturday. (5 marks)



Marking scheme

No.		Workir	ng		Marks	
1.	1044 + 1000	6×180	-			Long method only
	1006×18	0=181080			M ₁	
	1044+1810	80= 182,124	1		M ₁ , Ans 1	
		,			-/ -	
2.	Let the num	nber be x				
	LCM=produ	ict of the nu	mber			
	GCD	of the num	ber			Mark alternative
	140 = 20x	<pre></pre>			M ₁	method
	20	<u> </u>				inethod.
	$X = 140 \times 7$				M ₁	
	20					
	X = 49				Δ1	
3	$\frac{x^{2}}{x^{2}} + x = x(x + x)$	⊦1)			M ₁	
5.	$X_{2} = 1 = (x+1)$	(x-1)				
	$X_2^2 = (X + 1)$ $X_2^2 = x(x - 1)$	(/ 1)			M	
	X = X(x = 1) X(x = 1) (x = 1)				1011	
	X(X+1) (X-1)				Δ.	
1	<u>∧ -∧</u> <u>∧ +109 24</u>					Numerator
4.	<u>-4+108-24</u>	_				Numerator
	3077×2 4+109 34				Ν.4	Denominator
	16					Denominator
	⁸⁰ / – E				^	Accuracy
	$/_{16} = 5$				A ₁	Accuracy
5	3/(38/55)	(> 12/)			Ν.4	
5.	/8(/5- /	36 ^ / 5)				
	$3/_{0} \times \frac{59}{10} =$	- 1 ¹⁹ /			Μ. Δ.	
	/8~ /40 -	· 1 / 40			W1, A1	
6	8+(-1) + -2	2			M.	
0.	$\frac{0+(-4)}{24} + \frac{-2}{3}$	<u> </u>				
	-24	55			54	
	4/ _22/	1/ _2/				
	$7^{-24} - 7^{33}$	$- /_6 - /_3$ 15/5/			54	
	$\frac{-5-12}{10}$ -	/18 - /8				
7	10	2C and 1E				
/.		, 30, anu 45	20	45		
		30	36	45		
	2	15	18	45		
	2	15	9	45		
	3	5	3	15		
	3	5	1	5		
	5	1	1	1		
	$L.C.M = 2^2 \times$	$3^2 \times 5 = 180$				
					M 1	
	M=180+7=1	187				
					A 1	



8	36 192 120 744 and 9564	3mks	All listed
0.	50, 152, 120, 7 ++, und 550+	1 mk	When 2 numbers wrong
			More then 2 numbers
		UTIK	wrong
0	9.6.4.0-27		wrong
9.	8+0+4+9=27		
	2+0+X		
	27-(2+x)=11		
	27-2-x=11		
	X=27-2-11		But only one digit
	X=27-13=14		needed
	14 can not be the answer,	M 1	
	27-(2+x)= 22		
	27-2-x=22	M 1	
	X=27-2-22		
	X=27-24		
	X=3	A 1	
10.	4×(-2)×(-6)	M 1	
	4		
	=12	A 1	
11	4 -2		
	0 8 7 6 5 4 2 2 10		
	- <u>5-6-7-0-5-4-</u> 5-2-10		
	(-7) + (-2) + (+6) = = -3		
12		M 1	
	R=3 256		
	10r-32 5656		
	1000r-2256 565656	NA	
	9901=3250.5050		
	- 32.5656		
	3224.0000		
	D 2224/222		
12	R=3224/990	A 1	
13.	$\frac{3}{5} \times \frac{33}{4} = \frac{237}{20}$	IVI 1	
	297 / -		
	$\frac{25}{20} - 5$		
	$= 14^{17}/_{20} - 5$	M 1	
	$=9^{17}/_{20}$		
		A 1	
14	$\frac{10}{21} + (-\frac{1}{18}) \div \frac{1}{18}$	M 1	
	$^{10}/_{21} + (^{-1}/_{18} \times ^{10}/_{7})$		
	$= \frac{10}{21} - \frac{1}{7}$	M 1	
	$\frac{10}{21} - \frac{3}{21}$	A 1	
	7		
	$='/_{21} = '/_{3}$		



15.	<u> 2km</u>	M 1	
	$1/3 \times 2$ = 2/3 Distance from k= 2- ² / ₃ = 1 ¹ / ₃	M 1 A 1	
16.	L.C.M of 60 and 42 60 42 2 30 21 2 15 21 3 5 7 5 1 7 7 1 1 1 L.C.M = $2^2 \times 3 \times 5 \times 7$ =420 Area = 4.2×4.2 = 17.64M^2	M 1 M 1 A 1	
17.	a) Let his salary be sh. X School fees $1/4x$ Remaining $3/4x$ Electricity and water bills $1/4x \times 3/4x$ = 3/16x Remaining $3/4x - 3/16x$ = 9/16x Transport $1/9 \times 9/16x$ = 1/16x Remaining $= 9/16x - 1/16x$ = 8/16x = 1/2x 1/2x = 3,400 $X = 3,400 \times 2$ = 6,800 b) School fees $= 1/4 \times 6,800$ = sh. 1,700	M 1 M 1 M 1 M 1 A 1 A 1	
	c) transport = $\frac{1}{16} \times x$ $\frac{1}{16} \times 6,800$ Sh. 425	A 2	

d) Electricity and water bills A 2 $\frac{3}{1,0x} = \frac{3}{1,0x}6,800$ M1 Sh. 1,275 M1 18 Let B be the beginning and E stand for end of the B $\frac{23p}{1^4}$ $\frac{20p}{2^{nd}}$ E M1 $\frac{1^{12} 23-23 = 11}{9+120}$ $\frac{1}{2^{nd}}$ E M1 $\frac{9}{1239-12}$ $\frac{26}{11-20}$ $\frac{1}{20^{nd}}$ A1 M1 $\frac{1^{12} 23-23 = 11}{9+120}$ $\frac{1}{2^{nd}}$ A1 M1 $\frac{1^{12} 23-23 = 11}{120}$ $\frac{1}{20^{nd}}$ A1 M1 $\frac{9}{1239+12}$ $\frac{1}{20}$ $\frac{1}{20^{nd}}$ A1 M1 $\frac{1}{1^{14}}$ $\frac{1}{21}$ $\frac{1}{20}$ $\frac{1}{$				
d) Electricity and water bills A_2 $3'_{L2X} = 3'_{L6} \times 6,800$ $Sh. 1,275$ 18 Let B be the beginning and E stand for end of the stop stop M1 $g = \frac{23p}{1^{12}} = \frac{20p}{2^{12}} = \frac{26}{1^{12}} = \frac{1}{2^{nd}} = \frac{26}{1^{12}}$ M1 2^{nd} stop - stop M1 2^{nd} stop - 6-3 20-6-14 Final destination 14 + 12= 26 Passangers M1 2^{nd} stop -6-6-3 M1 2^{nd} stop -6-3 M1 2^{nd} stop -6-3 20-6-14 Final destination 14 + 12= 26 Passangers M1 1^{nd} stassangers A1 $(12\times50 = sh. 600$ M1 $11\times85 = sh.935$ M2 $3\times35 = sh.105$ M2 $3\times35 = sh.105$ M2 $12\times15 = sh. 180$ M1 $5h.1,940$ A1 $19.$ a) 1) 2+6^{n-2} *a $13.$ $13.$ $12\times15 = sh. 180$ M1 $23+n = 27 * = 25-22 = 3$ A1 b) 1) 3+9+6^{n+4+1.22} M1 $23+n = 27 * = 27-23 = 4$ A1 $13.$ $13.$ $23+n = 27 * = 12$ </th <th></th> <th></th> <th></th> <th></th>				
$\frac{3}{f_{LX}} = \frac{3}{1} + \frac{2}{2} \times 600$ M1 18 Let B be the beginning and E stand for end of the B M1 $8 - \frac{23p}{1^4} - \frac{20p}{2^{-d}} - \frac{26}{1}$ M1 $9 + 11 = 20$ M1 2^{-d} stop Stop 2^{-d} stop 30 - 6 - 3 A1 Final destination 14 + 12 = 26 Passangers M1 b) 23.9 + 12 M1 = 44 Passangers M1 (12×50 = sh. 600 M1 11×85 = sh.935 M2 6×20 = sh.120 M2 3×35 = sh.105 M2 12×15 = sh.180 M1 ii) 8×+7*1 = 11 M1 ii) 8×+9*+1 = 22 M1 ii) 8×+9*+1 = 22 M1 ii) 8×+9*+1 = 22 M1 iii) 8×+9*+1 = 22 M1 23* sum divisible by 9 M1 23* = 27 * = 27 * = 27 - 23 = 4 M1 iii) 3+4+9*+** 16+** = 18 *** = 18:16 = 2 * * * 0 2 M2 0 2 M3 0 - 2 0 M1 *		d) Electricity and water bills	A 2	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $				
18 Let B be the beginning and E stand for end of the be beginning and E stand for end of the begin and the beginning and the beginning and the beginn		$\frac{3}{16}x = \frac{3}{16} \times 6,800$		
18 Let B be the beginning and E stand for end of the B M1 10 $3 \frac{23p}{1^4}$ $20p}{2^{6}}$ M1 11 ⁴ $323 = 11$ M1 9 ⁴¹¹ 2^{14} A1 11 ⁴¹ 2^{16} A1 9 ⁴¹¹ 2^{16} A1 11 ⁴¹ 2^{16} A1 11 ⁴¹ 2^{16} A1 11 ⁴¹ 2^{16} M1 11 ⁴² 3^{16} 3^{16} 11 ⁴² 3^{16} 3^{16} 11 ⁴⁴ 3^{10} 4^{11} 11 ⁴⁴ 3^{11} M1 11 ⁴⁵ 5^{11} M1 11 ⁴⁴ 3^{11} M1 11 ⁴⁵		Sh. 1,275		
the B 23p 20p 26 1 ⁴¹ 2 ¹⁰⁴ 2 ¹⁰⁴ E M 1 stop stop M 1 M 1 9+11=20 2 ¹⁰⁴ K1 A 1 2 ¹⁰⁴ 1209 6-6-3 20-6-14 A 1 Final destination 14 + 12= 26 Passangers A 1 A 1 10 11×85=sh:935 A 1 A 1 6×20 = sh.120 M 2 3×35 = sh:105 M 2 12×15 = sh<180	18	Let B be the beginning and E stand for end of		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		the		
1 1 ¹⁴ 1 ²¹⁰ 1 ²¹⁰ 1 ²¹⁰ stop stop 1 ¹⁴ 23 1 9 1 ¹² 23 1 1 9 1 ¹² 20 1 1 9 1 ¹² 20 1 1 9 1 ¹² 20 1 1 10 1 ¹² 20 1 1 11 1 ¹² 1 ¹² 1 1 11 ¹² 1 ¹² 1 1 1 11 ¹² 1 ¹² 1 1 1 11 ¹² 1 ¹² 1 1 1 1 11 ¹² 1 ¹² 1 1 1 1 1 11 ¹² 1 ¹² 1 ¹¹ 1 1 1 1 1 1 1 1 1 1 1 1 1		B 23p 20p 26	M 1	
stop stop M1 1*23-23 = 11 M1 9+11= 20 A1 2"stop 9-6 = 3 20-6= 14 A1 Final destination 14 + 12= 26 Passangers M1 -44 Passangers A1 (12×50 = sh. 600 M1 11×85 = sh.935 M2 56×20 = sh.120 M2 3×35 = sh.105 12×15 = sh.180 51/2×15 = sh.180 M2 51/2×15 = sh.180 M1 19. a) i) 2+6*=0 *=8 M1 ii)i) 8+7**1 = 11 M1 14** = 11 *=14+11= 3 M1 iii)i) 8+9+9**1 = 22 A1 26**1 = 22 *= 25-22 = 3 A1 b) i) 3+9+6**5 A1 23+* sum divisible by 9 X3 23+* = 27 *= 27-23 = 4 A1 ii)]4+8+6+7+5+* A1 A1 A1 iii)]3+4+9+*** A1 iii)]3+4+9+*** A1 iii)]3+4+9+*** A1 iii)]3+4+9+*** A1 iii)]3+4+9+** A1 iii)]3+4+7=12 M1 iiii) A1 <td></td> <td>' 1[™] '2[™] 'E</td> <td></td> <td></td>		' 1 [™] '2 [™] 'E		
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$\begin{array}{c c c c c c c c c c c c c c c c c c c $		1 st 72-72 – 11	NJ 1	
Diff 20 20 320-6 = 14 A 1 Final destination 14 + 12= 26 Passangers M 1 +44 Passangers A 1 (12×50 = sh. 600 M 1 11×85 = sh.935 M 2 6×20 = sh.120 M 2 3×35 = sh.105 12×15 = sh.180		1 23 23 - 11 0 + 11 - 20		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		2^{nd} stop 9-6= 3 20-6= 1/	Δ 1	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		Final destination $14 + 12 = 26$ Passangers		
$3, 22, 53, 22$ $A1$ 44 Passangers $A1$ $(2)12\times50 = sh. 600$ $M1$ $11\times85 = sh.935$ $M2$ $3\times35 = sh.105$ $M2$ $12\times15 = sh.180$ $M2$ $5h.1,940$ $A1$ $19.$ $a)i) 2+6^{-*}=0^{-*}=8$ $M1$ $ii) 8+7^{-*}+1 = 11$ $14^{-*} = 11^{-*}=14^{-1}=3$ $M1$ $1ii) 8+9+9^{+}+1 = 22$ $26^{-*}-1 = 22^{-*} = 25^{-}22 = 3$ $A1$ $b)i) 3+9+6+*+5$ $23^{-*} = 27^{-*} = 27^{-}23 = 4$ $A1$ $iii) 4+8+6+7+5+^{*}$ $36^{-3}0 = 6$ $A1$ $iii) 3+4+9^{+*,*}$ $16^{+*,*} = 18$ $A1$ $iii) 3+4+9^{-*,*} = 18^{-1}6^{-2}$ $A1$ $A1$ $cORECT$ O_2 Mark FOR OTHERS THAT ARE $A1$ $C)$ $i) 3+^{*}+7 = 12$ $A1$ $*=2$ $M1$ $A1$		h) 23+9+12	M 1	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		=44 Passangers	A 1	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $				
$\begin{array}{c c c} (1230 - 311.000 & M 1 \\ 1130 - 311.000 & M 1 \\ \hline \\ 1230 - 311.00 & M 2 \\ \hline \\ 3x35 = sh.120 & M 2 \\ \hline \\ 3x35 = sh.105 & M 2 \\ \hline \\ 12x15 = sh.180 & M 2 \\ \hline \\ \hline \\ 12x15 = sh.180 & M 1 \\ \hline \\ 19. a) i) 2+6^{+}s - 0 & *=8 & M 1 \\ \hline \\ ii) 8+7^{-+}t 1 = 11 & M 1 & M 1 \\ \hline \\ iii) 8+9+9^{+}t 1 = 22 & *= 25-22 = 3 & A 1 \\ \hline \\ b) i) 3+9+6^{+}t + 5 & A 1 \\ \hline \\ b) i) 3+9+6^{+}t + 5 & A 1 \\ \hline \\ b) i) 3+9+6^{+}t + 5 & A 1 \\ \hline \\ 23+^{*}s un divisible by 9 & M 1 \\ 23+^{*}s - 27 & * = 27-23 = 4 & A 1 \\ \hline \\ iii) 4+8+6+7+5+^{*} & 30+^{*}s = 36 \\ *36-30 = 6 & \\ \hline \\ iii) 3+4+9+^{*}t & 16+^{*}t + s 18 \\ *+^{*}s = 18\cdot16=2 & A 1 \\ \hline \\ c) & i) 3+^{*}t - 7 = 12 & M 1 \\ *-2 & Mark FOR OTHERS THAT ARE \\ CORRECT & M 1 \\ \hline \\ c) & i) 3+^{*}t - 7 = 12 & M 1 \\ *-2 & M 1 \\ \hline \\ c) & i) 3+^{*}t - 7 = 12 & M 1 \\ *-2 & M 1 \\ \hline \\ c) & i) 3+^{*}t - 7 = 12 & M 1 \\ *-2 & M 1 \\ \hline \\ c) & i) 3+^{*}t - 7 = 12 & M 1 \\ *-1 & M 1 \\ \hline \\ c) & i) 3+^{*}t - 7 = 12 & M 1 \\ *-2 & M 1 \\ \hline \\ c) & i) 3+^{*}t - 7 = 12 & M 1 \\ *-2 & M 1 \\ \hline \\ c) & i) 3+^{*}t - 7 = 12 & M 1 \\ *-1 & M 1 \\ \hline \\ c) & i) 3+^{*}t - 7 = 12 & M 1 \\ *-2 & M 1 \\ \hline \\ c) & i) 3+^{*}t - 7 = 12 & M 1 \\ *-2 & M 1 \\ \hline \\ c) & i) 3+^{*}t - 7 = 12 & M 1 \\ *-2 & M 1 \\ \hline \\ c) & i) 3+^{*}t - 7 = 12 & M 1 \\ \hline \\ c) & i) 1 \\ c) & i) 1 \\ \hline \\ c) & i) 1 \\ \hline \\ c) & i) 1 \\ c) & i) 1 \\ \hline \\ c) & i) 1 \\ c) & $		c^{12} = ch 600	N/ 1	
$ \begin{bmatrix} 11303 \\ 820 \\ sh.120 \\ 3\times35 \\ sh.105 \\ 12\times15 \\ sh.180 \\ \hline \\ \hline \\ 12\times15 \\ sh.1940 \\ \hline \\ \hline \\ 19. \\ a) i) 2+6^{-*}=0 \\ *=8 \\ ii) 8+7^{-*}+1 \\ =11 \\ 14^{-*}=11 \\ 14^{-*}=11 \\ 14^{-*}=12 \\ 26^{-*}=22 \\ *=25-22 \\ =3 \\ A1 \\ \hline \\ b) i) 3+9+6^{+*}5 \\ 23^{+*} sum divisible by 9 \\ 23^{+*}=27 \\ *=27-23 \\ =4 \\ ii) 4+8+6+7+5+^{*} \\ 30^{+*}=36 \\ *36-30 \\ =6 \\ \hline \\ iii) 3+4+9^{+*}+^{*} \\ 16^{+*}+^{*}=18 \\ *^{+*}=12 \\ *^{+}=2 \\ ii) *^{+}=12 \\ *^{+}=2 \\ ii) *^{+}=12 \\ *^{+}=12$		$11\times95 - ch 0.25$		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		$6x^{20} = sh \cdot 120$	M 2	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		$3\times 35 = sh 105$		
$\frac{1}{3} + \frac{1}{3} + \frac{1}$		$12 \times 15 = sh \cdot 180$		
Sh. 1,940 A 1 19. a) i) 2+6-*=0 *=8 ii)8+7-*+1 = 11 14-* = 11 *=14-11= 3 iii) 8+9+9-*+1 = 22 26-*-1 = 22 *= 25-22 = 3 M 1 b) i) 3+9+6+*+5 23+* sum divisible by 9 23+* = 27 * = 27-23 = 4 M 1 iii)4+8+6+7+5+* 30+* = 36 *36-30 = 6 M 1 iii)3+4+9+*+* 16+*+* = 18 *+* = 18-16 = 2 * * A 1 2 0 0 2 MaRK FOR OTHERS THAT ARE CORRECT M 1 A 1				
19. a) i) 2+6-*=0 *=8 M 1 ii) 8+7-*+1 = 11 M 1 M 1 14.* = 11 *=14-11= 3 M 1 iii) 8+9+9-*+1 = 22 26-*-1 = 22 *= 25-22 = 3 A 1 b) i) 3+9+6+*+5 23+* sum divisible by 9 M 1 23+* = 27 * = 27-23 = 4 A 1 iii) 4+8+6+7+5+* 30+* = 36 *36-30 = 6 iii) 3+4+9+*+* 16+*+* = 18 A 1 iii) 3+4+9+*+* 16+*+* = 18 ** 2 0 0 2 Mark FOR OTHERS THAT ARE CORRECT C) i) 3+*+7 = 12 M 1 *= 2 A 1 A 1		Sh. 1,940	A 1	
ii) $8+7-*+1 = 11$ M 1 $14-* = 11 *=14-11= 3$ M 1iii) $8+9+9-*+1 = 22$ A 126-*-1 = 22 *= 25-22 = 3A 1b) i) $3+9+6+*5$ M 1 $23+* = 27 *= 27-23 = 4$ A 1iii) $4+8+6+7+5+*$ A 1 $30+* = 36$ *36-30 = 6iiii) $3+4+9+*+*$ $16+*+* = 18$ $16+*+* = 18$ *+* = 18-16 = 2* *2 00 2 Mark FOR OTHERS THAT ARECOi) $3+*7 = 12$ * = 2A 1ii) $1 + 1$	19.	a) i) 2+6-*=0 *=8	M 1	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		ii)8+7-*+1 = 11		
iii) $8+9+9-*+1 = 22$ $26-*-1 = 22 *= 25-22 = 3$ A 1b) i) $3+9+6+*+5$ $23+*$ sum divisible by 9 $23+* = 27 *= 27-23 = 4$ M 1ii) $4+8+6+7+5+*$ $30+* = 36$ * $36-30 = 6$ A 1iii) $3+4+9+*+*$ $16+*+* = 18$ * $+* = 18-16 = 2$ * * 2 0 0 2 MaRK FOR OTHERS THAT ARE CORRECTM 1C)i) $3+*+7 = 12$ * $= 2$ ii) $3+1$ M 1		14-* = 11 *=14-11= 3	M 1	
26-*-1 = 22 *= 25-22 = 3 A 1 b) i) 3+9+6+*+5 M1 23+* sum divisible by 9 A 1 ii)4+8+6+7+5+* A 1 30+* = 36 *36-30 = 6 iii)3+4+9+*+* 16+*+* = 18 16+*+* = 18 *+* = 18-16 = 2 * * 2 0 0 2 MaRK FOR OTHERS THAT ARE CO i) 3+*+7 = 12 * = 2 M1 *= 2 A 1		iii) 8+9+9-*+1 = 22		
b) i) $3+9+6+*+5$ 23+* sum divisible by 9 23+*=27 $*=27-23=4ii) 4+8+6+7+5+*30+*=36*36-30=6iii) 3+4+9+*+*16+*+*=18*+*=18-16=2*$ $*2$ 0 0 2 Mark FOR OTHERS THAT ARE CORRECT C) i) $3+*+7=12$ *=2 ii) $*1$ M 1 A 1		26-*-1 = 22 *= 25-22 = 3	A 1	
C) $i) 3^{+*} - 12$ $i) 3^{+$		b) i) 3+9+6+*+5		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		23+* sum divisible by 9	M 1	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		23+* = 27 * = 27-23 = 4		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$			A 1	
30+* = 36 $*36-30 = 6$ $iii)3+4+9+*+*$ $16+*+* = 18$ $*+* = 18-16 = 2$ $* *$ $2 0$ $0 2 Mark FOR OTHERS THAT ARE$ $CORRECT$ $C) i)3+*+7 = 12$ $*= 2$ $ii)* 1$ $M 1$ $A 1$		ii)4+8+6+7+5+*		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		30+* = 36		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		*36-30 = 6		
C) i) $3+4+9+*+*$ 16+*+* = 18 *+* = 18-16 = 2 * * $2 \ 0$ $0 \ 2 \ MaRK FOR OTHERS THAT ARE CORRECT i) 3+*+7 = 12*=2ii) * 1M 1A 1$				
C) $i) 3+*+7 = 12$ * = 2 ii) * 1 M 1 A 1		III)3+4+9+**+*		
$\begin{array}{c c} & & & & & \\ & & & & & & \\ & & & &$		$10^{+++} = 18$		
2 0 0 2 MaRK FOR OTHERS THAT ARE CORRECT i) 3+*+7 = 12 M 1 *= 2 A 1 ii) * 1 A 1		* * + = TQ-TO = 7		
2 0 2 MaRK FOR OTHERS THAT ARE CORRECT I) 3+*+7 = 12 M 1 *= 2 A 1 ii) *1 I		2 0		
C) i) $3+*+7 = 12$ M 1 ii) $i = 2$ A 1				
C) i) 3+*+7 = 12 *= 2 ii) * 1				
C) i) 3+*+7 = 12 *= 2 ii) * 1 M 1 A 1				
*= 2 ii) * 1	C)	i) 3+*+7 = 12	M 1	
ii) * 1		*= 2	A 1	
		ii) * 1		

	iii) * 0 Ma correct	rk for other v	alues that are		
d)	i) *= 2 ii) * =3 NB iii * = 0	: There could	l be other numbers	M 1 A 1	
20.	L.C.M of 324 a	and 220			
		324	220		
	2	162	110		
	2	81	55		
	3	27	55		
	3	9	55		
	3	3	55		
	3	1	55		
	5	1	11		
	11	1	1	NA 1	
	LCM = 2 ² ×3 ⁴ ×5 = 17, 820	5×11		A 1	
	b) i) son 1782	0/324			
	= 55 items			A 2	
	ii) daughter	17820/220		A ₂	
	= 81 item	15			

1. 2010 = 750	=100%	
2011 (100	-30)% of 750 bags-B 1	
70/1	00×750	
=525	5 Bags- B 1	
2012 115	5/100×525	
603	.75 Bags- Bags	
2010 750	× 55= 41250kg	
1 to	n= 1000kg	
41250	kg	
41250/	/1000	
= 41.2	25 tonnes – M 1	
1 tonn	e = 7900	
41.25	tonne = ?	
7900×41.	25 = sh. 325875 – B 1	
2011 525	×55 × ¹¹⁰ / ₁₀₀ ×7900	
10	00	
= sh. 2	250923.75 – M 1	
2012 603	3.75/1000×55 B 1	
11	10/100×8690 = sh. 317418	
Total 32	5875.00 M 1	
25	50923.75	
31	17418.54	
8	94217.29 A 1	
1		

5

22.		M 1	
	a) x = GCD ×LCM		
	# given		
	= 26×1092	A 2	
	182		
	= 156		
	Or: GCD = 26 =2×13		
	LCM =1096 = $2^2 \times 3 \times 7 \times 13$ 182= 2 × 7 × 13		
	Comparing factors of GCD and LCM and 182		
	$X = 2^2 \times 3 \times 13 = 156$		
	NB: For LCM: Common factors with lowest		
	power		
	GCD common factors with lowest power		
	b) Muigai = sh p		
	Nzau = sh 4p		
	Muli = sn. 2p		
	i) Total = p+4p+2p = 7p ii) P= sh 1500	M 1	
	Muigai 1500	M 1	
	Nzau 6000	M1	
	Muli <u>3000</u>	A 1	
	total Sh. 10500		
	c) w = 35° - vertically opposite angles are equal	A 1	
	x= 35° - corresponding angles	A 1	
	y= (180-35)°	A 1	
	= 145° Supplementally angles		
	Z = 145° Corresponding angles sum is equal to 180°	A 1	
23.	a) 2340 + 3455 + 675 + 960 + 1350	A 2	
	= 8780		

		A
b) i) lost job	M 1	
$^{2340}/_{5}$ + $^{3455}/_{5}$	M 1	
468 + 691	A 1	
= 1159		
iii) Got jobs		
$\frac{675}{3} + \frac{960}{3} + \frac{1350}{3}$	M 1	
225 + 320 450	M 1	
= 995 ×2		
 =1990	A 1	
c) 8780 + 1990 – 1159	M 1	
= 9,611	A 1	

a) Mass Frequency fx 90 2 180 91 1 91 94 3 282 96 2 192 98 2 196 99 4 396 102 3 306 105 3 315 20 1958 i) Mode=94 Number repeated many times A1 ii) Mean 1958/20 A1 b) Thusday bought = 1948 M 1 Sold = 750 Balance = 1,198 M 1 Friday; sold 240 + 750 = 990 M 1 Balance = 1,198-990 = 208 M 1 Saturday; Bought 560 M 1 M 1				
Mass Frequency fx 90 2 180 91 1 91 94 3 282 96 2 192 98 2 196 99 4 396 102 3 306 105 3 315 20 1958 i) Mode=94 Number repeated many times A 1 ii) Mean 1958/20 A 1 b) Thusday bought = 1948 M 1 Sold = 750 M 1 Balance = 1,198 M 1 Friday; sold 240 + 750 = 990 M 1 Balance = 1,198-990 = 208 M 1 Saturday; Bought 560 M 1 M 1				a)
90 2 180 91 1 91 94 3 282 96 2 192 98 2 196 99 4 396 102 3 306 105 3 315 20 1958 i) Mode=94 Number repeated many times A1 ii) Mean 1958/20 A1 b) Thusday bought = 1948 M 1 Sold = 750 Balance = 1,198 Friday; sold 240 + 750 = 990 $= 208$ M 1 Saturday; Bought 560 M 1		fx	Frequency	Mass
91 1 91 94 3 282 96 2 192 98 2 196 99 4 396 102 3 306 105 3 315 20 1958 A 1 many times A 1 i) Mode=94 Number repeated many times A 1 ii) Mean 1958/20 A 1 b) Thusday bought = 1948 M 1 Sold = 750 M 1 Balance = 1,198 M 1 Friday; sold 240 + 750 = 990 M 1 Balance = 1,198-990 = 208 M 1 Saturday; Bought 560 M 1		180	2	90
94 3 282 96 2 192 98 2 196 99 4 396 102 3 306 105 3 315 20 1958 i) Mode=94 Number repeated many times A1 ii) Mean 1958/20 iii) =97.9 b) Thusday bought = 1948 M 1 Sold = 750 Balance = 1,198 Friday; sold 240 + 750 = 990 Balance = 1,198-990 = 208 M 1 Saturday; Bought 560 M 1 Total on sat 560 + 208 = 768		91	1	91
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		282	3	94
98 2 196 99 4 396 102 3 306 105 3 315 20 1958 i) Mode=94 Number repeated many times A 1 ii) Mean 1958/20 iii) =97.9 b) Thusday bought = 1948 M 1 Sold = 750 Balance = 1,198 Friday; sold 240 + 750 = 990 Balance = 1,198-990 = 208 M 1 Saturday; Bought 560 M 1 Total on sat 560 + 208 = 768		192	2	96
99 4 396 102 3 306 105 3 315 20 1958 i) Mode=94 Number repeated A 1 many times A 1 ii) Mean 1958/20 A 1 b) Thusday bought = 1948 M 1 Sold = 750 M 1 Balance = 1,198 M 1 Friday; sold 240 + 750 = 990 M 1 Balance = 1,198-990 = 208 M 1 Saturday; Bought 560 M 1		196	2	98
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		396	4	99
105 3 315 $A1$ 20 1958 $A1$ i) Mode=94 Number repeated $A1$ many times $A1$ ii) Mean 1958/20 $A1$ b) Mean 1958/20 $A1$ b) Thusday bought = 1948 $A1$ Sold = 750 $M1$ Balance = 1,198 $M1$ Friday; sold 240 + 750 = 990 $M1$ Balance = 1,198-990 $= 208$ $M1$ Saturday; Bought 560 $M1$		306	3	102
20 1958 A 1	A 1	315	3	105
i) Mode=94 Number repeated A 1 many times A 1 ii) Mean 1958/20 A 1 iii) =97.9 A 1 b) Thusday bought = 1948 M 1 Sold = 750 Balance = 1,198 Friday; sold 240 + 750 = 990 Balance = 1,198-990 M 1 = 208 M 1 Saturday; Bought 560 M 1 Total on sat 560 + 208 = 768 M 1		1958	20	
many times A 1 ii) Mean 1958/20 iii) =97.9 b) Thusday bought = 1948 M 1 Sold = 750 Balance = 1,198 Friday; sold 240 + 750 = 990 Balance = 1,198-990 M 1 Balance = 1,198-990 M 1 Saturday; Bought 560 M 1 Total on sat 560 + 208 = 768 M 1	A 1	epeated	le=94 Number r	i) Mod
ii)Mean 1958/20 $= 97.9$ A 1b) Thusday bought = 1948M 1Sold $= 750$ Balance $= 1,198$ Friday;sold 240 + 750 = 990 Balance = 1,198-990 $= 208$ Saturday; Bought 560M 1Total on sat 560 + 208 = 768				many times
III) =97.9 b) Thusday bought = 1948 M 1 Sold = 750 Balance = 1,198 Friday; sold 240 + 750 = 990 Balance = 1,198 - 990 = 208 M 1 Saturday; Bought 560 Total on sat 560 + 208 = 768 M 1	A 1		n 1958/20	ii) Mea
b) Thusday bought = 1948 M 1 Sold = 750 M 1 Balance = 1,198 M 1 Friday; sold 240 + 750 = 990 M 1 Balance = 1,198-990 = 208 Saturday; Bought 560 M 1 Total on sat 560 + 208 = 768			9	III) =97.5
Sold = 750 Balance = 1,198 Friday; sold 240 + 750 = 990 Balance = 1,198-990 $= 208$ Saturday; Bought 560 M 1 Total on sat 560 + 208 = 768	M 1		oought = 1948	b) Thusday b
Balance = 1,198 M 1 Friday; sold 240 + 750 = 990 M 1 Balance = 1,198-990 M 1 = 208 M 1 Saturday; Bought 560 M 1 Total on sat 560 + 208 = 768 M 1			= 750	Sold
Friday; sold 240 + 750 = 990 M 1 Balance = 1,198-990 = 208 Saturday; Bought 560 M 1	M 1		= 1,198	Balance
Balance = 1,198-990 = 208 Saturday; Bought 560 M 1	M 1	90	old 240 + 750 = 99	Friday; so
= 208 Saturday; Bought 560 M 1 Total on sat 560 + 208 = 768		90	alance = 1,198-99	B
Saturday; Bought 560 M 1 Total on sat 560 + 208 = 768			= 208	
Total on sat 560 + 208 = 768	M 1		ought 560	Saturday; B
			560 + 208 =768	Total on sat !
Money = 768 × 8 = Ksh. 6144 A 1	A 1	6144	= 768 ×8 = Ksh. 6	Money =

