

FOCUS A365

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Form 1	Term 1	121 A - Mathematics	26-Okt-17	End Term
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ADM: NAME: CLASS.....

SECTION 50 MARKS

1. 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 $X^2 + X$, $X^2 - 1$, $X^2 - X$. (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 $\{7^{\frac{3}{5}} - \frac{1}{3}(1^{\frac{1}{4}} + 3^{\frac{1}{3}}) \times 2^{\frac{2}{5}}\}$ (3 marks)

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

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

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 number below to make it divisible by 11, (3 marks)

82604__ 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)

12. Change the recurring decimal into fraction, $3.2\dot{5}\dot{6}$ (3 marks)

13. By how much is the product of $9/5$ and $8^{1/4}$ greater than 5? (3 marks)

14. Evaluate, $(5/7 \times 2/3) + (5/6 - 8/9) \div 7/15$ of $5/6$ (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 $\frac{1}{4}$ of his net January salary on school fees. He spent $\frac{1}{4}$ of the remainder on electricity and water bills. He spent $\frac{1}{9}$ 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.

c) $3 * 7$, $1 * 43$, $81 * 60$ are divisible by 3.

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 tonne in 2010. Thereafter the price per tonne 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)

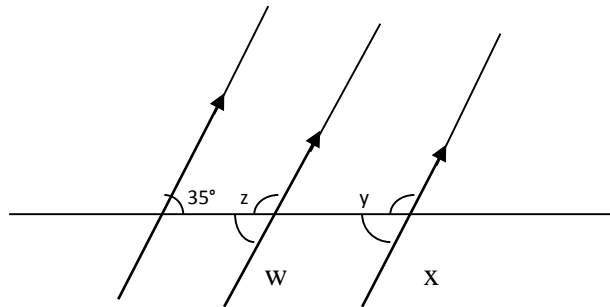
22. a) The Highest Common Factor(HCF) of 182 and x is 26 and the L.C.M of 182 and x is 1092. Determine the value of x. (3 marks)

b) 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 $p = \text{sh. } 1500$, how much money did they have altogether? (3 marks)

b)



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)

c) How many people:

i) Lost job (3 marks)

ii) Got job (3 marks)

d) 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.

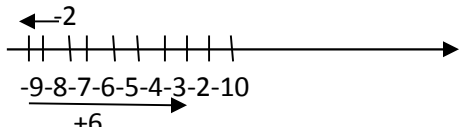
i) State the mode. (1mk)

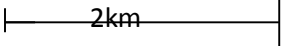
ii) Calculate the mean mass per bag (4 marks)

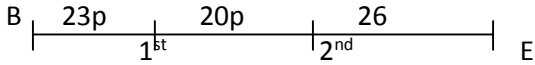
Prepared for Asumbi Girls High School

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)

No.	Working	Marks																									
1.	$1044 + 1006 \times 180$ $1006 \times 180 = 181080$ $1044 + 181080 = 182,124$	M_1 M_1, Ans_1	Long method only																								
2.	Let the number be x $LCM = \frac{\text{product of the number}}{\text{GCD of the number}}$ $140 = \frac{20 \times x}{20}$ $X = \frac{140 \times 7}{20}$ $X = 49$	M_1 M_1 A_1	Mark alternative method.																								
3.	$X^2 + x = x(x+1)$ $X^2 - 1 = (x+1)(x-1)$ $X^2 - x = x(x-1)$ $X(x+1)(x-1)$ $X^3 - x$	M_1 M_1 A_1																									
4.	$\frac{-4 + 108 - 24}{56 \div 7 \times 2}$ $\frac{-4 + 108 - 24}{16}$ $\frac{80}{16} = 5$	M_1 M_1 A_1	Numerator Denominator Accuracy																								
5.	$\frac{3}{8} \left(\frac{38}{5} - \frac{55}{36} \times \frac{12}{5} \right)$ $\frac{3}{8} \times \frac{59}{40} = 1\frac{19}{40}$	M_1 M_1, A_1																									
6.	$\frac{8 + (-4)}{-24} + \frac{-22}{33}$ $\frac{4}{-24} - \frac{22}{33} = -\frac{1}{6} - \frac{2}{3}$ $\frac{-3 - 12}{18} = -\frac{15}{18} = -\frac{5}{6}$	M_1 M_1 M_1 A_1																									
7.	L.C.M of 30, 36, and 45 <table border="1" style="margin-left: 20px;"> <tr> <td></td> <td>30</td> <td>36</td> <td>45</td> </tr> <tr> <td>2</td> <td>15</td> <td>18</td> <td>45</td> </tr> <tr> <td>2</td> <td>15</td> <td>9</td> <td>45</td> </tr> <tr> <td>3</td> <td>5</td> <td>3</td> <td>15</td> </tr> <tr> <td>3</td> <td>5</td> <td>1</td> <td>5</td> </tr> <tr> <td>5</td> <td>1</td> <td>1</td> <td>1</td> </tr> </table> $L.C.M = 2^2 \times 3^2 \times 5 = 180$ $M = 180 + 7 = 187$		30	36	45	2	15	18	45	2	15	9	45	3	5	3	15	3	5	1	5	5	1	1	1	M_1 M_1 A_1	
	30	36	45																								
2	15	18	45																								
2	15	9	45																								
3	5	3	15																								
3	5	1	5																								
5	1	1	1																								

8.	36, 192, 120, 744, and 9564	3mks 1 mk 0 mk	All listed When 2 numbers wrong More than 2 numbers wrong
9.	$8+6+4+9=27$ $2+0+x$ $27-(2+x)=11$ $27-2-x=11$ $X=27-2-11$ $X=27-13=14$ 14 can not be the answer, $27-(2+x)=22$ $27-2-x=22$ $X=27-2-22$ $X=27-24$ $X=3$	 M_1 M_1 A_1	But only one digit needed
10.	$\frac{4 \times (-2) \times (-6)}{4}$ $=12$	M_1 A_1	
11.	 $(-7) + (-2) + (+6) = -3$		
12.	$R=3.25\overline{6}$ $10r=32.5656\dots$ $1000r=3256.565656\dots$ $990r=3256.5656\dots$ $\begin{array}{r} - \quad 32.5656\dots \\ \hline 3224.0000\dots \end{array}$ $R=3224/990$	M_1 M_1 A_1	
13.	$\frac{9}{5} \times \frac{33}{4} = \frac{297}{20}$ $\frac{297}{20} - 5$ $= \frac{14^{17}}{20} - 5$ $= \frac{9^{17}}{20}$	M_1 M_1 A_1	
14	$\frac{10}{21} + (-\frac{1}{18}) \div \frac{7}{18}$ $\frac{10}{21} + (-\frac{1}{18} \times \frac{18}{7})$ $= \frac{10}{21} - \frac{1}{7}$ $\frac{10}{21} - \frac{3}{21}$	M_1 M_1 A_1	

	$= \frac{7}{21} = \frac{1}{3}$																				
15.	 <p> $\frac{1}{3} \times 2$ $= \frac{2}{3}$ Distance from k = $2 - \frac{2}{3}$ $= 1\frac{1}{3}$ </p>	M_1 M_1 A_1																			
16.	<p>L.C.M of 60 and 42</p> <table border="1" data-bbox="261 695 813 915"> <tbody> <tr> <td></td> <td>60</td> <td>42</td> </tr> <tr> <td>2</td> <td>30</td> <td>21</td> </tr> <tr> <td>2</td> <td>15</td> <td>21</td> </tr> <tr> <td>3</td> <td>5</td> <td>7</td> </tr> <tr> <td>5</td> <td>1</td> <td>7</td> </tr> <tr> <td>7</td> <td>1</td> <td>1</td> </tr> </tbody> </table> <p> L.C.M = $2^2 \times 3 \times 5 \times 7$ $= 420$ </p> <p> Area = 4.2×4.2 $= 17.64M^2$ </p>		60	42	2	30	21	2	15	21	3	5	7	5	1	7	7	1	1	M_1 M_1 A_1	
	60	42																			
2	30	21																			
2	15	21																			
3	5	7																			
5	1	7																			
7	1	1																			
17.	<p>a) Let his salary be sh. X</p> <p> School fees $\frac{1}{4}X$ Remaining $\frac{3}{4}X$ Electricity and water bills $\frac{1}{4}X \times \frac{3}{4}X$ $= \frac{3}{16}X$ Remaining $\frac{3}{4}X - \frac{3}{16}X$ $= \frac{9}{16}X$ Transport $\frac{1}{9} \times \frac{9}{16}X$ $= \frac{1}{16}X$ Remaining $= \frac{9}{16}X - \frac{1}{16}X$ $= \frac{8}{16}X = \frac{1}{2}X$ $\frac{1}{2}X = 3,400$ $X = 3,400 \times 2$ $= 6,800$ </p>	M_1 M_1 M_1 M_1 A_1																			
	<p>b) School fees = $\frac{1}{4} \times 6,800$ $= \text{sh. } 1,700$</p>	A_1																			

	c) Transport = $\frac{1}{16} \times 6,800$ Sh. 425	A 2	
	d) Electricity and water bills $\frac{3}{16} \times 6,800$ Sh. 1,275	A 2	
18	Let B be the beginning and E stand for end of the  $1^{st} \text{ stop } 23-9 = 14$ $2^{nd} \text{ stop } 20-9 = 11$ Final destination $14 + 11 = 25$ Passangers	M 1 M 1 A 1	
	b) $23+9+12$ =44 Passangers	M 1 A 1	
	c) $12 \times 50 = \text{sh. } 600$ $11 \times 85 = \text{sh. } 935$ $6 \times 20 = \text{sh. } 120$ $3 \times 35 = \text{sh. } 105$ $12 \times 15 = \text{sh. } 180$ <hr/> Sh. 1,940	M 1 M 2 A 1	
19.	a) i) $2+6-*=0 \quad *=8$ ii) $8+7-*+1 = 11$ $14-*=11 \quad *=14-11=3$ iii) $8+9+9-*+1 = 22$ $26-*-1 = 22 \quad *=25-22 = 3$	M 1 M 1 A 1	
	b) i) $3+9+6+*+5$ $23+*$ sum divisible by 9 $23+*=27 \quad *=27-23=4$ ii) $4+8+6+7+5+*$ $30+*=36$ $*36-30=6$ iii) $3+4+9+*+*$ $16+*+*=18$ $*+*=18-16=2$ * * 2 0 0 2 MaRK FOR OTHERS THAT ARE CORRECT	M 1 A 1	

C)	i) $3 + * + 7 = 12$ $* = 2$ ii) $* = 1$ iii) $* = 0$ Mark for other values that are correct	M 1 A 1																												
d)	i) $* = 2$ ii) $* = 3$ NB: There could be other numbers iii) $* = 0$	M 1 A 1																												
20.	L.C.M of 324 and 220 a) <table border="1" data-bbox="256 674 813 1010"> <tr> <td></td> <td>324</td> <td>220</td> </tr> <tr> <td>2</td> <td>162</td> <td>110</td> </tr> <tr> <td>2</td> <td>81</td> <td>55</td> </tr> <tr> <td>3</td> <td>27</td> <td>55</td> </tr> <tr> <td>3</td> <td>9</td> <td>55</td> </tr> <tr> <td>3</td> <td>3</td> <td>55</td> </tr> <tr> <td>3</td> <td>1</td> <td>55</td> </tr> <tr> <td>5</td> <td>1</td> <td>11</td> </tr> <tr> <td>11</td> <td>1</td> <td>1</td> </tr> </table> $LCM = 2^2 \times 3^4 \times 5 \times 11$ $= 17,820$		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	M 1 A 1	
	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																												
	b) i) son $17820/324$ $= 55$ items ii) daughter $17820/220$ $= 81$ items	A ₂ A ₂																												

21.	<p>2010 = 750 =100%</p> <p>2011 (100-30)% of 750 bags-B 1</p> <p>70/100×750</p> <p>=525 Bags- B 1</p> <p>2012 115/100×525</p> <p>603.75 Bags- Bags</p> <p>2010 750 × 55= 41250kg</p> <p>1 ton= 1000kg</p> <p>41250kg</p> <p>41250/1000</p> <p>= 41.25 tonnes – M 1</p> <p>1 tonne = 7900</p> <p>41.25 tonne = ?</p> <p>7900×41.25 = sh. 325875 – B 1</p> <p>2011 $\frac{525 \times 55}{1000} \times \frac{110}{100} \times 7900$</p> <p>= sh. 250923.75 – M 1</p> <p>2012 603.75/1000×55 B 1</p> <p>110/100×8690 = sh. 317418</p> <p>Total 325875.00 M 1</p> <p>250923.75</p> <p>317418.54</p> <hr/> <p>894217.29 A 1</p>		
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22.	<p>a) $x = \frac{\text{GCD} \times \text{LCM}}{\text{\# given}}$ $= \frac{26 \times 1092}{182}$ $= 156$ Or: $\text{GCD} = 26 = 2 \times 13$</p> <p>$\text{LCM} = 1096 = 2^2 \times 3 \times 7 \times 13$ $182 = 2 \times 7 \times 13$</p> <p>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</p>	M 1 A 2	
	<p>b) Muigai = sh p</p> <p>Nzau = sh 4p</p> <p>Muli = sh. 2p</p> <p>i) Total = $p + 4p + 2p = 7p$ ii) P = sh 1500</p> <p>Muigai 1500</p> <p>Nzau 6000</p> <p>Muli <u>3000</u></p> <p>total Sh. 10500</p>	M 1 M 1 M1 A 1	
	<p>c) $w = 35^\circ$ - vertically opposite angles are equal</p> <p>$x = 35^\circ$ - corresponding angles</p> <p>$y = (180 - 35)^\circ$ $= 145^\circ$ Supplementally angles</p> <p>$Z = 145^\circ$ Corresponding angles sum is equal to 180°</p>	A 1 A 1 A 1 A 1	
23.	<p>a) $2340 + 3455 + 675 + 960 + 1350$ $= 8780$</p>	A 2	

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

24.

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

ii) Mean $1958/20$

iii) =97.9

A 1

A 1

A 1

b) Thursday bought = 1948

Sold = 750

Balance = 1,198

Friday; sold $240 + 750 = 990$

Balance = $1,198 - 990$

= 208

Saturday; Bought 560

Total on sat $560 + 208 = 768$

Money = $768 \times 8 = \text{Ksh. } 6144$

M 1

M 1

M 1

M 1

A 1

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