

F1 ENDYEAR ASSIGNMENT

MATHEMATICS

10+ HOLIDAY ASSESMENT PAPERS

*Dear Students, Make Maximum Utilization of limited time
Available to Attempt and Work on these Year-Round
Examination Trials.*

A Comprehensive Evaluation Analysis of Term 1-3 Questions.

SERIES 1

For Marking Schemes

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FORM 1 EXAMINATION TRIALS

MATHEMATICS

PRACTICE TRIAL 1

TIME: 2 HOURS

SECTION I: (ATTEMPT ALL QUESTIONS IN THIS SECTION)

1. Express each of the following numbers as a product of prime factors. **(3mks)**

i) 256 –

ii) 1078

iii) 81

2. Three tanks are capable of holding 36, 84 and 90 litres of milk. Determine the capacity of the greatest vessel which can be used to fill each one of them exact times. **(3mks)**

3. Perform the following operations using a number line. **(4mks)**

i) $+5 - (-2)$.

ii) $+4 - (+7)$

4. 3 bells ring at interval of 40 minutes, 45 minutes and 60 minutes. If they ring simultaneously at 6.30a.m, at what time will they ring together? **(4mks)**

5. Kamau spent $\frac{1}{4}$ of his net salary on school fees. He spent $\frac{1}{4}$ of the remainder on electricity and water bills. He then spent $\frac{1}{9}$ of what was left on transport. If he had shs. 16000 left. What was his net salary? **(4mks)**

6. Evaluate $\frac{1}{2} \left\{ \frac{3}{5} + \frac{1}{4} \left(\frac{7}{3} - \frac{3}{7} \right) \right\}$ of $1\frac{1}{2} \div 5$ **(3mks)**

7. Convert the following into fractions.

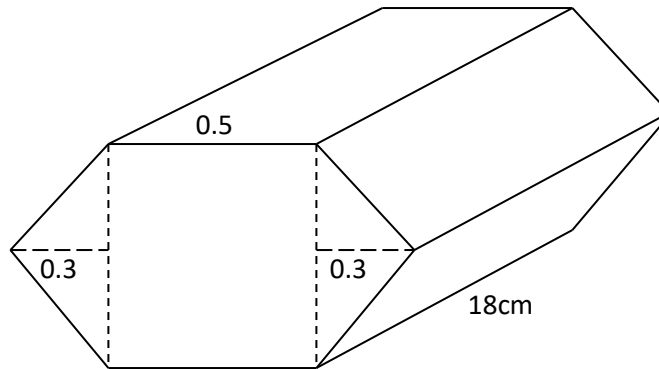
a) $0.\dot{7}\dot{3}$ **(2mks)**

b) $0.2\dot{3}$ **(2mks)**

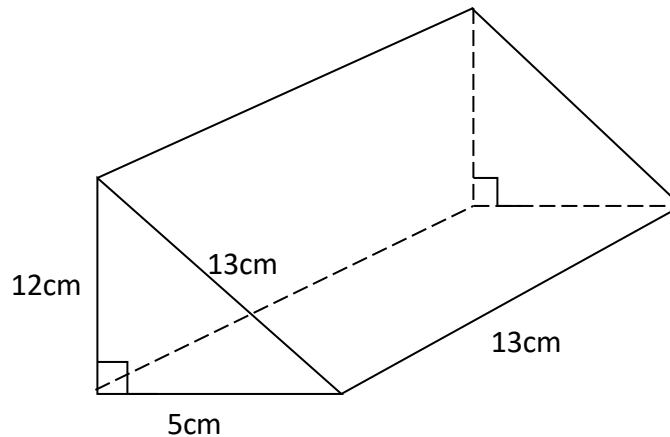
- 8.** 1 litre of milk is poured into a cylindrical container of radius 10cm. Calculate the depth of milk. **(3mks)**

- 9.** Find the surface area of the following diagram **(4mks)**

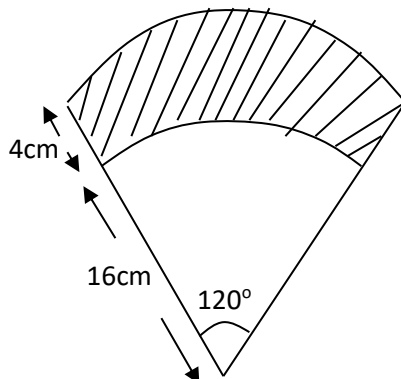
a)



b)



- 10.** The shaded region in the figure below swept out on a flat windscreen by a wiper. Calculate the area of the region. **(4mks)**



11. (a) Find the circumference of a circle radius 7cm. **(2mks)**

(b) The circumference of a bicycle wheel is 140cm. Find its radius.

SECTION II: (Attempt all questions in this section)

12. A bus left Kampala on Wednesday and travelled to Mombasa according to the travel time table below arriving there on Friday morning.

Kampala	Departure	2015 hrs
Malava	Arrival	0430hrs
	Departure	0655 hrs
Nakuru	Arrival	1325hrs
	Departure	1455hrs
Nairobi	Arrival	1840 hrs
	Departure	2030hrs
Mombasa	Arrival	0500hrs

Calculate:

a) The time taken by the bus to travel from:

i) Kampala to Malava. **(1mk)**

ii) Malava to Nakuru. **(1mk)**

iii) Nakuru to Nairobi. **(1mk)**

iv) Nairobi to Mombasa. **(1mk)**

- b)** The total travelling time between Kampala and Mombasa. **(2mks)**
- c)** The total stoppage time during the whole journey. **(2mks)**
- d)** The average speed for the whole journey given that the distance between Kampala and Mombasa is 1965km. **(2mks)**
- 13.** A radio manufacturer makes radios and sells them to a distributor at a profit of 15%. The distributor sells the radios to a retailer at a profit of 30%. The retailer finally sells the radios to his customers at a profit of 50%.
- a)** A customer paid shs. 897 for a pocket radio. Find how much it had cost the manufacturer to make the pocket **radio**. **(3mks)**
- b)** A retailer bought a radio cassette player which had cost the manufacturer shs. 4,000 to make. Calculate the amount he paid. **(2mks)**
- c)** A customer bought a radio at shs. 2691. Calculate how much the distributor paid for the same radio. **(3mks)**

- d)** Express as a percentage the amount the customer paid for the radio in (c) above to the amount the distributor paid for it. **(2mks)**

14. A man spent $\frac{1}{9}$ of his salary on food and $\frac{1}{4}$ of the remainder on electricity and water bills. He paid fees with 20% of his salary and invested 16% of what was left into a business. After taking a game drive on which he spent Kshs. 2,000, he saved Kshs. 5350. Calculate:

- a)** His total monthly earnings. **(4mks)**

- b)** How much he spent on fees. **(2mks)**

- c)** How much he invested. **(2mks)**

- d)** The percentage of the salary saved. **(2mks)**

FORM 1 EXAMINATION TRIALS

MATHEMATICS

PRACTICE TRIAL 2

TIME: 2 HOURS

1.Evaluate $26 \div 2 + 3 \times 7 - 4 \times 5$ **3mks**

2.Evaluate $3\frac{1}{3} + \frac{6}{7}$ of $5\frac{4}{9}$ **3mks**

3.A watermelon vendor had 1500 watermelons. He sold 800 on the first day and 250 on the second day. He added 470 to the remaining stock on the third day.
e)How many watermelons did he have at the end? **2mks**

f) If he sold all the watermelons at an average cost of sh. 100. Each. How much money did he collect. **2mks**

4.a. State the place value and total value of the underlined digit in 473645 **2mks**

- b. Write the number in (a) above in words. **1mk**
- 5.** Round off 4 827 627.931 to the nearest
c) Ten thousand **2mks**
- d) Hundredths **2mks**
- 6.** Test whether 712.008 is divisible by 11 **2mks**
- 7.** Express as a fraction in its simplest form $0.6\bar{3}$ **3mks**
- 8.** $\frac{3}{5}$ of the pupils in a school are boys. If there are 96 girls in the school, how many pupils are there in the school. **3mks**
- 9.** Express 1728 as a products of its prime factors in power form. **3mks**
- 10.** Arrange the following fractions in descending order
 $\frac{1}{2}, \frac{3}{5}, \frac{4}{7}, \frac{8}{9}, \frac{2}{3}$ **3mks**
- 11.** Evaluate $\frac{0.0195 \times 4.55}{13.0 \times 0.35}$ **3mks**

- 12.** Find the G.C.D of 32, 48, 36 **2mks**
- 13.** Three alarms signals at interval of 40 minutes, 45 minutes and 60 minutes. If they signaled simultaneously at 6.30am, at what time will they next signal together. **3mks**
- 14.** Doris office is on the twenty second floor in a storey building. On a certain day, she walked up five floors from her office to another office. She then took a lift to the third floor. Calculate the number of floors she went through while in the lift. **3mks**
- 15.** Use tables to find **2mks**
- 423^2
- $\sqrt{0.067}$ **2mks**
- 16.** Express the following number as stated. **2mks**
- i. 0.000000718 (in standard form)
- ii. 1.56×10^{-5} (in normal form) **2mks**

17. a. Carol borrowed sh. 150,000 she paid back sh. 25,000 in the first month. Sh 15,000 in the second month and sh. 34,000 in the third month. She paid the rest in equal amounts for two months. How much did she pay for each of the last two months. **4mks**

b. Find the difference in value between the largest number and the smallest number formed by digits 5, 2 and 8. **3mks**

c. The first four even numbers are written in descending order to form a number.

i. Write down the number **1mk**

ii. Find the total value of the thousands digit in the number. **2mks**

18. a. Express the following numbers as products of prime factors using power notation.

c) 5148 **2mks**

d) 6084 **2mks**

b. Hence leaving your answers in prime factor form.

(i) Evaluate $\frac{(5148)^2}{\sqrt{6084}}$ **4mks**

(ii) Find G.C.D and L.C.M of 5148 and 6084.

2mks

19. a. Three metal rods of lengths 234cm, 270cm and 324cm were cut into shorter pieces, all of the same length to make window grills. Calculate the length of the longest piece that can be cut from each of the rods and hence the number of pieces that can be obtained from the rods. **4mks**

b. A metal dealer had a piece of wire which he intended to cut into pieces of 8m, 15m or 21m. determine the minimum length of the wire that would give an exact number of pieces of each length. **3mks**

c. The G.C.D of two numbers is 12 and their L.C.M is 240. If one of the numbers is 60. Find the other number. **3mks**

20. a. simplify

3mks

$$1\frac{1}{9} \times \frac{3}{8} \text{ of } 2\frac{2}{5}$$

b. Mr. Kamau sold two thirds of his fruits on Monday, and $\frac{3}{4}$ of the remainder on Tuesday. He had then 60 left. How many fruits had she at first. **3mks**

C. $\frac{\frac{2}{3} \text{ of } 5\frac{2}{5} - 2\frac{3}{10}}{\frac{3}{5} \div 4\frac{1}{2} + 1\frac{3}{5}}$

4mks

21. a) Find the value of $(25 + 36)^2 - 625 \div 25 \times 4$

3mks

b) Evaluate $\frac{-8x + 2 + -11}{+18 \div -2x + 3}$

3mks

c) Use number line to evaluate.

i) $-5 + 3$

2mks

ii) $(-7) + (-1)$

2mks

FORM 1 EXAMINATION TRIALS

MATHEMATICS

PRACTICE TRIAL 3

TIME: 2 HOURS

1. Add one thousand and fourty 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 $-8 \div 2 + 12 \times 9 - 4 \times 6$ **(3 marks)**
 $56 \div 7 \times 2$

5. Evaluate $\frac{3}{8}$ of $\{7^{\frac{3}{5}-1} / 3(1^{\frac{1}{4}} + 3^{\frac{1}{3}}) \times 2^{\frac{2}{5}}\}$ **(3 marks)**

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

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

- 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 number below to make it divisible by 11, **(3 marks)**
 $82604 \div 9$

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

- 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, $3.25\overline{6}$ **(3 marks)**

- 13.** By how much is the product of $\frac{9}{5}$ and $8\frac{1}{4}$ 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 $\frac{1}{4}$ 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.

$93*$, $85*2$, $90*4$ 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)**

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

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

If p = 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)

How many people:

Lost job

(3 marks)

Got **job**

(3 marks)

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.

State the mode.

(1mk)

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 mks)**

FORM 1 EXAMINATION TRIALS

MATHEMATICS

PRACTICE TRIAL 4

TIME: 2 HOURS

1. Write 27707807 in words. (2mks)

2. Use either $<$, $>$ or $=$ to relate the fractions below.

a) $\frac{2}{4}$ and $\frac{3}{6}$ **(1mk)**

b) $\frac{60}{25}$ and $\frac{60}{132}$ **(1mk)**

3. State the place values of the following digits in the number 201.789.

1 (1mk)

8 (1mk)

7 (1mk)

4. Use factor-tree to decompose 256 into prime factors. (4mks)

5. Evaluate **(3mks)**

6. A car consumes 8 litres of petrol to cover 51 km. what average distance does it travel for every distance? **(4mks)**

7. Use the symbols $<$, $>$, or $=$ to compare the following integers.
-2 and -3 **(1mk)**

-3 and 4 **(1mk)**

5 and -5 **(1mk)**

8. Find the L.C.M of 24, 15 and 16. **(3mks)**

9. From the following set of numbers which are:
a) Odd[20,18,6,7,8,21] **(1mk)**

b) Prime[14,2,10,9,3] **(1mk)**

10. Convert the following fractions into percentages:

$\frac{3}{4}$ **(2mks)**

$\frac{1}{4}$ **(2mks)**

11. What is the G.C.D of 60, 80 and 120? **(3mks)**

12. What fraction does letter K represent in the diagram below? **(3mks)**

K	L	L	L	K
L	K	K	L	W
L	L	L	K	L
L	K	L	L	L

13. Write in figures five billion five million five thousand and five. **(2mks)**

14. The sum of two consecutive even numbers is 74, find the two numbers. **(4mks)**

15. Write the following into improper fraction:

a) 1 **(2mks)**

b) 2 **(2mks)**

16. Use a number line to perform the following operations.

a) $(-10)-(-3)$ **(1mk)**

b) $(-3)-(-4)$ **(1mk)**

c) $(+1)-(-8)$ **(1mk)**

SECTION II (50MKS)

Answer any five Questions in this section

- 17.** a) A two digit number is such that the ones digit is 1 times greater than the tens digit. If the sum of the digits is 9, find the number. **(6mks)**

- b)find** the product of the positive difference and the maximum quotient between the digits. **(4mks)**

- 18.** Three bells ring at intervals of 6 minutes, 5 minutes and 8 minutes. If they rang first at 9.15 a.m, find when they will ring for:
The second **time** **(6mks)**

The 5th time **(4mks)**

19. a) State the value of digit 7 after the operations below.

i) 3.45×20.54

(2mks)

ii) 34.5×20.54

(2mks)

iii) 345×205.4

(2mks)

iv) 3.45×205.4

(2mks)

b) state the value of second digit in the product 67.5×44.4 .

(2mks)

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21. check whether the following numbers are divisible by 6:

390

(2mks)

441

(2mks)

6732

(2mks)

7544

(2mks)

5310

(2mks)

22. Express the following numbers in powers of their prime factors:
196 **(2mks)**

72 (2mks)

385 **(2mks)**

300 (2mks)

715 **(2mks)**

23. Three boys shared some money. The youngest got $\frac{1}{12}$ of it, the next got $\frac{1}{9}$ and the eldest got the remainder.

a) What fraction of the money did the eldest receive?

(6mks)

b) If the eldest boy got shs. 330, what was the original sum of money?

(4mks)

- 24.** Round off the following numbers to the nearest values indicated in the brackets,
- i)** 370 (1000) **(2mks)**
- ii)** 2499 (10) **(2mks)**
- iii)** 38679 (10000) **(2mks)**
- iv)** 473678 (100) **(2mks)**
- v)** 501 (1000) **(2mks)**

FORM 1 EXAMINATION TRIALS

MATHEMATICS

PRACTICE TRIAL 5

TIME: 2 HOURS

- 1.** Write in words 437 308 041. **(2mks)**

- 2.** Test whether the number 24831 is divisible by 3. **(3mks)**

- 3.** Three tanks are capable of holding 361, 841 and 901 of milk. Determine the capacity of the greatest vessel which can be used to fill each one of them on exact number of times. **(3mks)**

- 4.** Write the following in standard form. **(2mks)**
 - d) 0.001576

 - e) 325.87

5. Use tables to find the:

1. Square of 36.21

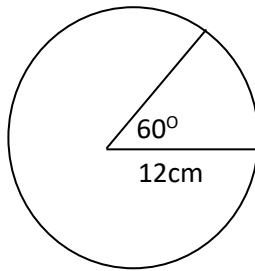
(2mks)

2. Square root of 0.0293

(2mks)

6. Find the perimeter of the figure below.

(3mks)



7. If $x = -2$, $y = -6$ and $z = 4$, find the value of:

(2mks)

$\frac{3YZ}{X}$ _____

8. Express the following numbers as a product of prime factors.

a) 472

(2mks)

b) 1078

(2mks)

9. Arrange the following fractions in ascending order. **(2mks)**

$\frac{11}{12}$, $\frac{5}{6}$, $\frac{2}{3}$, $\frac{5}{6}$

10. The sum of three consecutive whole numbers is 84. Find the numbers. **(3mks)**

11. Express the following as a fraction.

i. 0.67 **(3mks)**

ii. 2.83 **(3mks)**

12. Maureen spent sh. 207 to buy 7 exercise books and 4 pens while Sharon spent sh. 165 to buy 5 exercise books and 5 pens of same type. Find the cost of each item. **(3mks)**

- 13.** The sum of interior angles of a regular polygon is 720° . Find the number of sides of the polygon and give its name. **(3mks)**

- 14.** A lady bought US £ 5000. From this, she spent US\$ 1000 on a return ticket and US\$ 1750 while in USA. Upon her return, she sold the remaining dollars. Using the following exchange rate:

Currency	buying	selling
1US Dollar (£)	78.4133	78.4744

- a)** How much did she pay to the bank in Kenya shillings to get the US £ 5000? **(2mks)**

- b)** How much in Kenya shilling did she get after selling the remaining amount to the bank? **(2mks)**

- 15.** Solve the following pair of simultaneous equations graphically. **(6mks)**
 $2x - y = 3$

$$X + 2y = 14$$

SECTION II (20MKS)

Answer all questions.

- 16.** The travel timetable below shows the departure and arrival times for a bus flying between two towns M and R, 300km apart.

Town	Arrival	Departure
M		0830h
N	1000h	1020h
P	1310h	1340h
Q	1510h	1520h
R	1600h	

How long does the bus take to travel from town M to N? **(2mks)**

What time does it take at town P? **(2mks)**

At what time does it arrive at town R in 12hr clock system? **(2mks)**

What is its average speed for the whole journey? **(4mks)**

17. Daniela spent $\frac{1}{4}$ of her net January salary on school fees. She spent $\frac{1}{4}$ of the remainder on electricity and water bills. She then spent $\frac{1}{9}$ of what was left on transport. If she finally had sh. 3400.

a) What fraction of her January salary was spent on electricity and water bill?
(2mks)

b) What fraction remained after she spent on fees, electricity and water bills?
(2mks)

c) What fraction was spent on transport?
(2mks)

d) Calculate her net January salary.
(4mks)

FORM 1 EXAMINATION TRIALS

MATHEMATICS

PRACTICE TRIAL 6

TIME: 2 HOURS

Instructions.

Answer all questions in the spaces provided.

- 1.** Express the following numbers in words.

(2mks)

14633001

30000010

- 2.** A matatu charges sh. 120 as fare from town A to town B. It has a capacity of 18 passengers. How much money does it make in one day covering 10 trips with full capacity.

(3mks)

- 3.** Use the divisibility test of 11 to check whether the following numbers are divisible by 11.

(2mks)

1048564

1120043

4. Use Bodmas to evaluate.

(3mks)

$$\frac{\frac{1}{2} \left[\frac{3}{5} + \frac{1}{4} \left(\frac{7}{3} - \frac{3}{7} \right) \text{ of } 1 \frac{1}{2} \div 5 \right]}{3 \frac{5}{7}}$$

5. Victoria spent $\frac{1}{4}$ of his net January salary on school fees. She spent $\frac{1}{4}$ of the remainder on electricity and water bills. She then spent $\frac{1}{9}$ of what was left on transport. If she finally had sh. 3400. What was her net January salary. **(3mks)**

6. Using mathematical tables evaluate.

$$7340^2$$

(1mk)

$$14.5^2 + 0.714^2$$

(2mks)

7. Given that $a:b = 1:2$ and $b:c = 3:4$. Find $a:b:c$

(1mk)

8. Three bells ring at intervals 30mins, 35mins and 50 mins. If they ring together at 11:25 p.m on Monday at what time and day will they next ring together? **(3mks)**

9. The length of minute hand of a clock is 3.5cm. Find the angle it turns through if it sweeps an area of 4.8cm^2 . (take $\pi = \frac{22}{7}$) **(3mks)**
10. Express the following as a single fraction. **(3mks)**
- $$\frac{x-1}{2} + \frac{x+2}{4} + \frac{x}{5}$$
- $$\frac{ax - ay + bx - by}{a+b}$$
 (2mks)
11. Fifteen tractors each working eight hours a day takes eight days to plough a piece of land. How long would it take 24 tractors each working 10 hours a day to plough the same piece of land. **(3mks)**
12. Use factor tree to decompose 256 into prime factors. **(2mks)**
13. Juma, Ali and Hassan share the profit of their business in the ratios 3:7:9 respectively. If Juma receives sh. 6000. How much profit did the business yield. **(3mks)**

14. Use bodmas to evaluate: **(4mks)**

$$5 \times 6 - 76 \div 4 + 27 \div 3$$

$$4 - 2 \times 4 + 36 \div 4$$

15. A Kenyan bank buys and sells foreign currency as shown in the table below.

	Buying (ksh)	Selling (ksh)
us dollar	95.34	95.87
uk pound	124.65	125.13

A tourist arrived in Kenya with 15000 pounds which he converted in kshs.

3. How much kshs did he receive? **(2mks)**

4. He later spend sh. 125340 while in Kenya. He converted the remainder in dollars. How many dollars did he receive? **(3mks)**

16. A metallic cuboid measuring 16cm by 8cm by 4cm was melted. The material was used to make a cube. What is the length of the cube. **(3mks)**

17. Find a if $a^2 = b^2 + c^2$ given that $b=2$ $c=3.5$. **(2mks)**

- 18.** Below is a travel timetable for a vehicle operating between towns A and D 70 km apart.

Town	Arrival	Departure
A		10.10 am
B	10.30am	10.40 am
C	11.00 am	11.05 am
D	11.20am	

- a)** At what time does the vehicle depart from town A? **(1mk)**
- b)** How long does it take to travel from town A to town B? **(1mk)**
- c)** For how long does it stay in town B? **(1mk)**
- d)** At what time does it arrive in town D? **(1mk)**
- e)** What is the average speed of the whole journey? **(3mks)**
- f)** A football match lasts 90 minutes with a break of 15 minutes at half time. If a referee allows five minutes extra for injuries and stoppages, what time does a match which kicks off at 4:30 pm end? **(3mks)**

19. A rectangular plot measures 100m by 200m. Determine:

a) Its perimeter in km. **(2mks)**

b) Its area in m^2 . **(2mks)**

c) Its area in ha. **(2mks)**

d) Square tiles of 100cm by 100cm are used to cover the floor. How many tiles are used? **(2mks)**

e) If the cost of 1 tile is sh. 25. How much money will be spent on tiles. **(2mks)**

FORM 1 EXAMINATION TRIALS

MATHEMATICS

PRACTICE TRIAL 7

TIME: 2 HOURS

- 1.** Add one thousand and fourty 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 $\{7^{\frac{3}{5}-1}/_3(1^{\frac{1}{4}}+3^{\frac{1}{3}}) \times 2^{\frac{2}{5}}\}$ **(3 marks)**

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

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

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

$$82604 \div 9$$

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, $3.\overline{256}$ **(3 marks)**

13. By how much is the product of $\frac{9}{5}$ and $8\frac{1}{4}$ 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 $\frac{1}{4}$ 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.

$93*$, $85*2$, $90*4$ 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)**

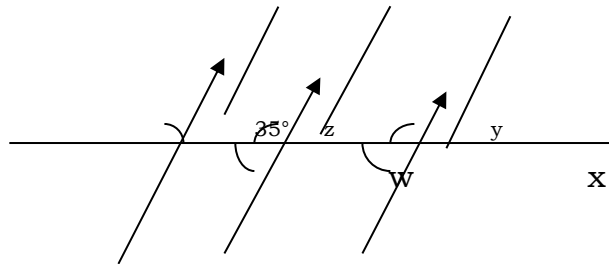
Muigai had sh. P; Nzau had four times as much as Muigai. Muli had half as much as Nzau.

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

If p = 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)

How many people:

Lost **job**

(3 marks)

Got job

(3 marks)

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.

State the mode.

(1mk)

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)**

FORM 1 EXAMINATION TRIALS

MATHEMATICS

PRACTICE TRIAL 8

TIME: 2 HOURS

SECTION I (50 MARKS)

1. Evaluate : $\frac{-12 \div (-3) \times 4 - (-20)}{-6 \times 6 \div 3 + (-6)}$ **(3mks)**

2. factorize each of the following expression
 $3px - 4ap + 3qx - qy$ **(2mks)**

$a^2 - 4ap - 4p + a$ **(2mks)**

3. The G.C.D of three numbers is 30 and their L.C.M is 900. Two of the numbers are 60 and 150. What is the least possible value of the third number? **(3mks)**

4. Three people Odawa, Mliwa and Amina contributed money to purchase a flour mill. Odawa contributed $\frac{1}{3}$ of the total amount, Mliwa contributed $\frac{3}{8}$ of the remaining amount and Amina contributed the rest of the money. The difference in contribution between Mliwa and Amina was sh.40,000. Calculate the price of the flour mill. **(4mks)**

5. Arrange the following fractions in ascending order

(3mks)

$\frac{7}{8}$, $\frac{5}{6}$, $\frac{7}{12}$, $\frac{2}{3}$

6. Evaluate the following

(3mks)

$\frac{2.4 \times 3.2 \times 0.0096}{0.018 \times 0.064 \times 96}$

7. In fourteen years time a mother will be twice as old as her son, four years ago the sum of their ages was 30 years. Find how old the mother was when the son was born. **(4mks)**

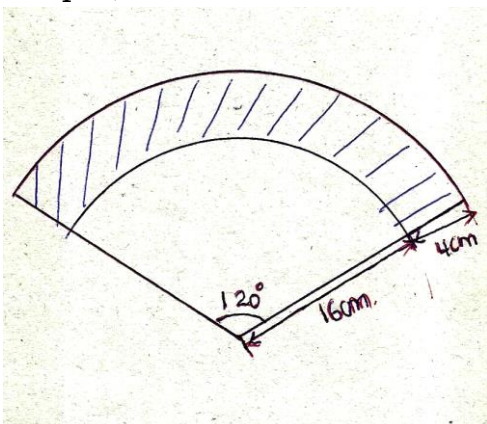
8. Three bells ring at intervals of 20 minutes, 30 minutes and 45 minutes. The bells will ring together at 12.40 pm. Find the time the bells had last rang together. **(3mks)**

9. When 10 is added to twice a number and the result doubled, the final result is 32. Find the number. **(3mks)**

10. Express $3.2\overline{56}$ as a fraction **(3mks)**

11. Use mathematical tables to find the square root of 0.001952 **(3mks)**

12. The shaded region below shows the area swept out on a flat windscreen by a wiper, calculate the area of the region. **(3mks)**



13. The length of an arc of a circle is one-eighth the circumference of the circle. Find the angle subtended by this arc at the centre if the radius of the circle is 14cm. (Take $\pi = \frac{22}{7}$) **(4mks)**

14. The price of an article was raised by 20% and a week later the price was lowered by 20%. What is the new price if the original price was Sh.50. **(3mks)**

15. The acceleration due to gravity on the moon is 1.6N/Kg . An astronaut weighs 670N on the earth surface. Find His mass **(2mks)**

His weight on the moon's surface **(2mks)**

SECTION II (50MKS)

16. Three business partners Bela, Joan and Trinity contributed Ksh.112,000, Ksh.128,000 and Ksh.128,000 respectively to start a business. They agreed to share their profit as follows:

30% to be shared equally

30% to be shared in the ratio of their contributions

40% to be retained for the running of the business.

If at the end of the year the business realized a profit of ksh. 1,350,000

Calculate :

a) The amount of money retained for the running of the business at the end of the year
(1mk)

b) The difference between the amounts received by Trinity and Bela **(6mks)**

c) Express Joan's share as a percentage of the total amount of money shared between the three partners. **(3mks)**

- 17.** The net of the solid of a cuboid consists of a series of rectangles. By drawing the net of the solid determine:
Given that it measures 6cm by 3cm by 2cm.
The surface area of the cuboid
Its volume
(10mks)

- 18.** A tin has a square base whose sides measures 32cm. the vertical sides are 50cm high. Cake mixture is poured into the tin and leveled off at the 38cm mark above the base.

Find:

a) Surface area of the tin **(3mks)**

b) The capacity of the tin **(3mks)**

c) The volume of the cake mixture in the tin in cm^3 **(2mks)**

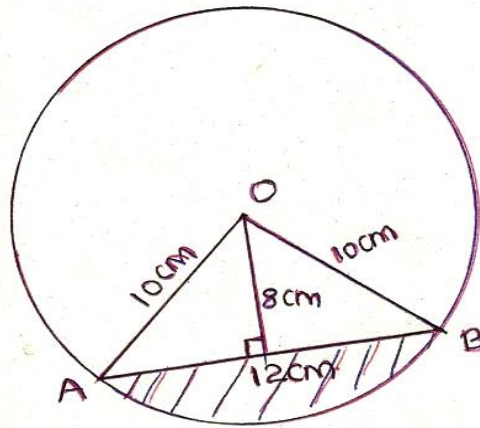
d) The volume of the space unoccupied by the cake in cm^3 **(2mks)**

- 19.** A cylindrical water tank with no top was constructed. If the diameter of the tank was 2.8m and height 4.8m. calculate:
Its volume **(3mks)**

Given that it was filled with a liquid of density 0.8g/cm^3 , calculate the mass of the liquid inside the cylinder **(3mks)**

Given that the cost of painting was 50 shillings for every 1m^2 , calculate the cost of painting the water tank **(4mks)**

- 20.** Study the diagram below and answer the questions that follow.



Given that $\angle AOB = 120^\circ$, calculate

- a.** Area of the minor sector **(3mks)**
- b.** Area of the triangle OAB **(2mks)**
- c.** Area of the shaded region **(2mks)**
- d.** By calculating the area of the circle first, calculate the area of unshaded region **(3mks)**

4. Evaluate $\frac{1470^2}{7056}$ using prime factors and leave your answer in prime factors form. **(4mks).**

5. Evaluate
$$\frac{\frac{1}{2} \text{ of } 3\frac{1}{2} + 1\frac{1}{2}(2\frac{1}{2} - \frac{2}{3})}{\frac{3}{4} \text{ of } 2\frac{1}{2} \div \frac{1}{2}}$$
 (4mks).

6. Use number line to solve $6 - (-4)$ **(2mks).**

7. Given that $X = 4$ and $y = -6$, evaluate the following. **(3mks).**
 $6x - 3xy$

8. Simplify

$$\frac{a+b}{2} - \frac{2a-b}{3}$$

(3mks)

9. The ratio of boys and girls in a mixed school is 2:3. If there are 160 boys, how many girls are there? **(3mks).**

10. Find the ratio a:c, given that;
a:b = 7: 1, b:d = 1: 2, d: c = 2: e

(4mks).

11. The perimeter of a semicircular protractor is 14.28cm. Find its radius. **(3mks)**

12. The area of the sector of a circle is 38.5cm². Find the radius of the circle if the angle subtended at the centre is 90°. (Take $\pi = \frac{22}{7}$). **(3mks).**

- 13.** A cylindrical column of fat has diameter 17.5cm and height 10cm. Calculate the density in g/cm^3 of fat if the column has a mass of 2kg. **(3mks)**

- 14.** Express the following measurements in 3 s.f **(3mks)**

1. 36.7892

2. 0.09854

3. 345204

- 15.** Find the square root of 0.001952 using mathematical table. **(3mks)**

- 16.** Arrange the following numbers in an ascending order. **(3mks)**

$2\frac{7}{8}$, $1\frac{4}{5}$, 3, $1\frac{7}{9}$

SECTION B 50 MARKS

ANSWER ALL QUESTIONS IN THIS SECTION

17. A rectangle measures 18cm by 12cm.

1. If each dimension is reduced by 2cm, by what percentage is:

The perimeter reduced.

(3mks)

The area of the rectangle reduced..

(3mks)

2. If each dimension is reduced by 2%, by what percentage is the area of the rectangle reduced.

(4mks).

18. (a) Study the equations below and complete the tables.

$$7x + 2y = 16$$

$$2x - y = 3$$

x	0	1	2
y			

x	0	2	4
y			

(b) On the same axis, draw the graphs of $y = 2x - 3$ and $y = 8 - \boxed{\frac{7}{2}x}$

(4mks)

(c) Use the graph to solve the simultaneous equations;

(2mks)

$$y = 2x - 3$$

$$y = 8 - \boxed{\frac{7}{2}x}$$

19. (a) Draw triangle ABC in which AB = 11cm, AC = 8cm and BC = 5.6cm.

(2mks)

(b) Construct the bisectors of any two angles of the triangle and let the bisectors meet at R.

(2mks)

(c) Draw the perpendicular from R to AB so that it cuts AB at M.

(2mks)

(d) With centre R and the radius RM, Draw a circle.

(2mks)

(e) Calculate the area of the circle.

(2mks)

20. A carpenter constructed a closed wooden box with internal measurements 1.5m long by 0.8m wide and 0.4m high. The wood used in constructing the box was 1.0cm thick and had a density of 0.6 g/cm^3 .

e) Determine the:

a. Volume in cm^3 of the wood used in constructing the box. **(3mks)**

b. Mass of the box in kg correct to 1dp. **(2mks)**

Identical cylindrical tins of diameter 10cm and height 20cm with a mass of 120g each were packed in the box. Calculate;

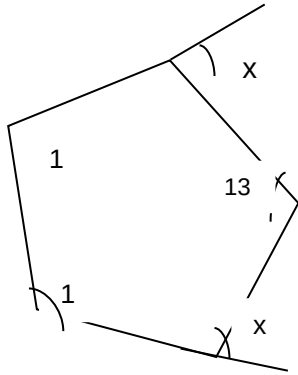
Maximum number of tins that were packed in the box. **(3mks)**

Total mass of the box with the tins. **(2mks)**

21. Find the size of the angles marked with letters.

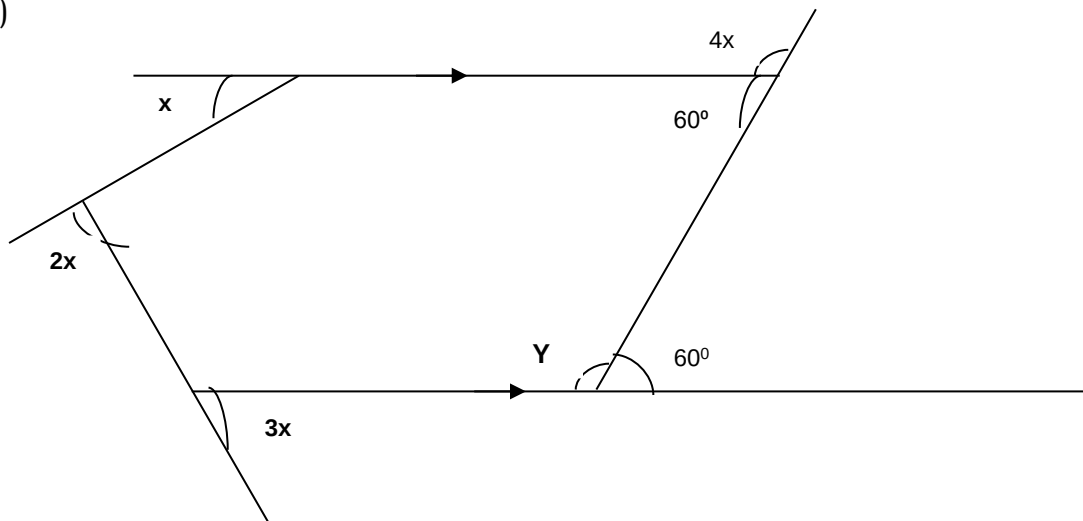
(a)

(1mk)



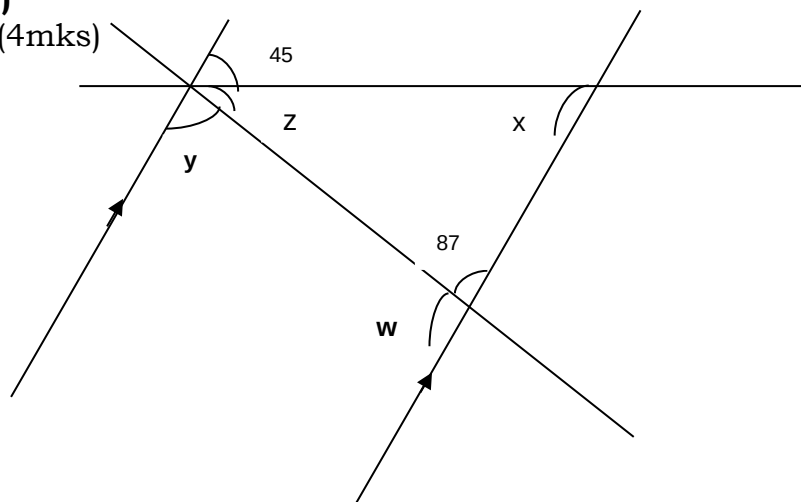
(5mks)

(b)



(c)

(4mks)



22. (a) The GCD of two numbers and their LCM is 360. If one of the numbers is 72, what is the other number? **(3mks).**

(b) When a number **u** is divided by 34 or 24 or 40, the remainder is always 5. Find the least value of **u**. **(3mks)**

(c) **Three** bells ring at intervals of 12minutes, 15minutes and 18minutes. If they sound together at 10:00 am;

After how long will they next sound together?

(3mks).

What time will this be?

(1mks)

FORM 1 EXAMINATION TRIALS

MATHEMATICS

PRACTICE TRIAL 10

TIME: 2 HOURS

SECTION I

1. Without using a calculator evaluate $2\frac{1}{2} + \frac{1}{5} \div \frac{5}{6}$ of $2\frac{2}{5}$ leaving the answer as a fraction in its simplest form

$$1\frac{7}{10}$$

(3 marks)

2. A farmer distributed his bags of cabbages as follows:

A certain hospital received a quarter of the total number of bags. A nearby school received half of the remainder. A green grocer received a third of what the school received. What remained was six more than what the green grocer received. How many bags of cabbages did the farmer have?

(3mks)

3. Simplify the expression

$$5a - 4b - 2[a - (2b + c)]$$

(2 marks)

4. Evaluate:
$$\frac{-12 \div (-3) \times 4 - (-20)}{-6 \times 6 \div 3 + (-6)}$$
 (3 marks)

5. All prime numbers less than ten are arranged in descending order to form a number.

(a) Write down the number formed (1 mark)

(b) State the total value of the second digit in the number formed in (a) above (2 mks)

6. 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 that 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.

(4 marks)

7. A rectangle of side 48cm by 60cm is divided into squares of side X cm. Find the greatest value of X and find the area of the square. **(3mks)**

8. Three bells rang at intervals of 9minutes, 15 minutes and 21minutes. The bells will ring together at 11.00p.m. Find the time the bells had last rang together **(3 marks)**

9. Three businessmen Makokha, Njau and Odhiambo contributed a total amount of sh 120,000 to start a business. The ratio of the contributions of Makokha and Njau was 2:3 and that of Njau to Odhiambo was 2:5. How much did Odhiambo contribute? **(4 marks)**

- 10.** Two pairs of trousers and three shirts cost a total of 390. Five such pairs of trousers and two shirts cost a total of sh.810. Find the price of a pair of trousers and a shirt. **(3marks)**

- 11.** Solve the equation $\frac{1}{4x} = \frac{5}{6x} - 7$ **(3 marks)**

- 12.** Without using mathematical tables evaluate **(3 marks)**
- $$\frac{0.18 \times 4}{\sqrt{3.24 \times 4}}$$

- 13.** A number n is such that when it is divided by 27, 30, or 45, the remainder is always 3. Find the smallest value of n. **(3mks)**

14. (a) The prime numbers between 30 and 40 are written in ascending order to form a number. Write down the number. **(1mk)**

(b) A second number is formed by writing all square numbers between 40 and 70 in the ascending order. Find the difference between this number and the one formed in (a) above giving your answer to the nearest tens. **(2mks)**

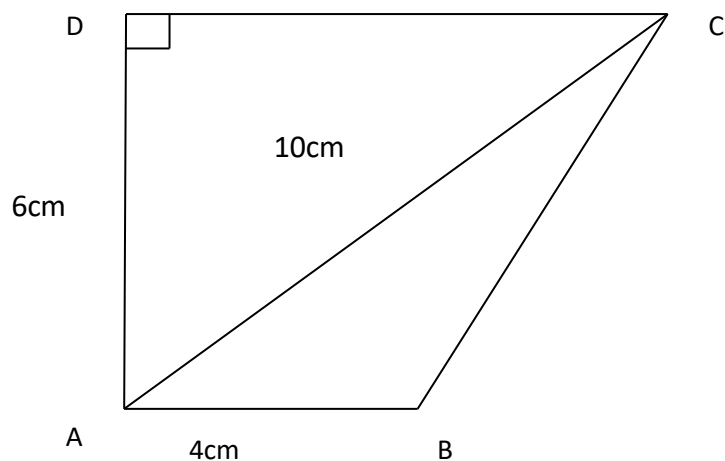
15. A watch which loses a half a minute every hour was set read the correct time at 0445hr on Monday. Determine in twelve hour system the time the watch will show on Friday at 1845hr the same week. **3mks**

16. Arrange the following fractions in ascending order. $\frac{2}{3}$, $\frac{7}{12}$, $\frac{5}{8}$, **(3mks)**

SECTION II

Answer only FIVE questions from this section

17. In the figure below $AB=4\text{cm}$, $AD=6\text{cm}$ and $AC=10\text{cm}$ find:

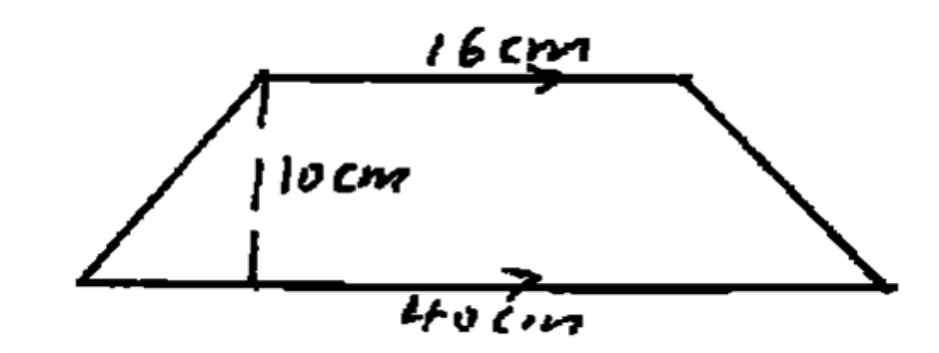


- a. the area of triangle ABC. **(3mks)**

- b. the length of the perpendicular from B to AC. **(4mks)**

- c. the length of DC if the area of triangle ADC is equal to 24cm^2 **(3mks)**

18. (a) Find the area of the following figure. (2mks)

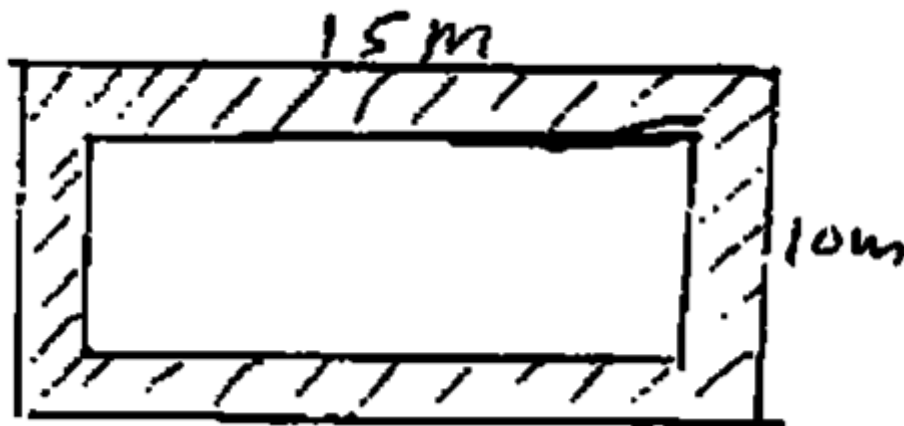


- b) A piece of wire is in the shape of an arc of a circle, radius 10.5cm. The angle at the centre is 150°

i. Calculate the length of the wire. (2mks)

ii. If the wire is bent to form a complete circle, find its radius. (3mks)

- c) A flower garden measuring 10m by 15m is surrounded by a path 2m wide, as shown by the figure below. Find the area of the path. **(3mks)**



- 19.** Two business partners Nzau and Masese contributed sh.112,000 and sh 128,000 respectively, to start a business. They agree to share their profits as follows;
- 30% to be shared equally
 - 30% to be shared in the ratio of their contributions
 - 40% to be retained for the running of the business.

If their total profit for the year 1989 was sh.86400 calculate

a) (i) The amount shared equally. (2marks)

(ii) simplified ratio of contribution (2mks)

(iii) The amount retained for running the business (2marks)

b) The amount received by each partner. (4 mks)

- 20.** (a) Three litres of water (density 1 g/cm^3) is added to 12 litres of alcohol (density 0.8 g/cm^3) Calculate:
- (i) The mass of water in grammes(g) **(2mks)**
- (ii) The mass of alcohol in g. **(1mks)**
- (iii) The density of the mixture in g/cm^3 **(2mks)**
- b .A right angled triangular prism has length 3m, breadth 2m and height 2.5m. If the mass of the prism is 3.4kg,.Calculate.
- (i) Area of the cross-section in m^2 **(2 mks)**
- (ii) Volume of the prism in m^3 **(1mk)**
- (iii) The density of the prism in kg/m^3 **(2mks)**

- 21.** a) Express the following decimal as a fraction in its simplest form
0.185 **(2mks)**

b. Evaluate the following $\frac{3\frac{1}{2} + 2\frac{3}{8}}{4\frac{1}{3} - 2\frac{5}{12}}$ **(3mks)**

b. Carol borrowed sh. 150000. She paid back sh.25000 in the first month, sh. 15000 in the second month and sh. 34000 in the third month. She paid the rest in equal amounts for two months. How much did she for each of the last two months? Calculate:

(i) The amount she paid back in the first 3 months. **(2mks)**

(ii) How much did she pay for each of the last two months. **(3mks)**

- 22.** Use mathematical tables to evaluate the following
- a) 8.457^2 (2mks)
- b) 567.4^2 (2mks)
- c) $\sqrt{456.7}$ (3mks)
- d) $\sqrt{0.7893}$ (3mks)