FORM ONE HOLIDAYS SMART PASS MATHEMATICS 10 QUESTION PAPERS



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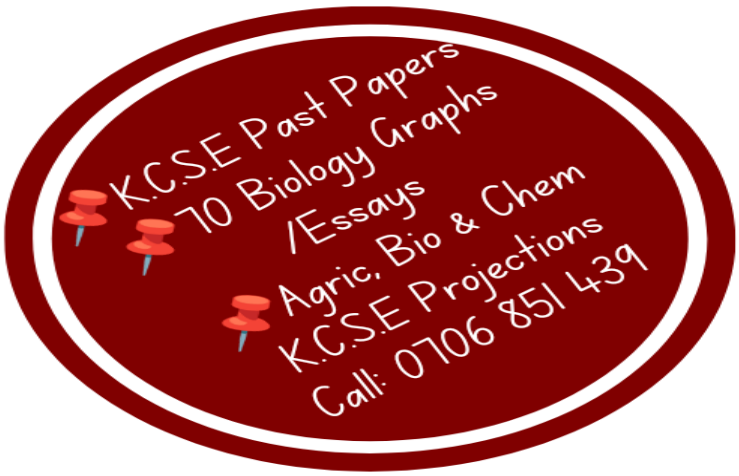
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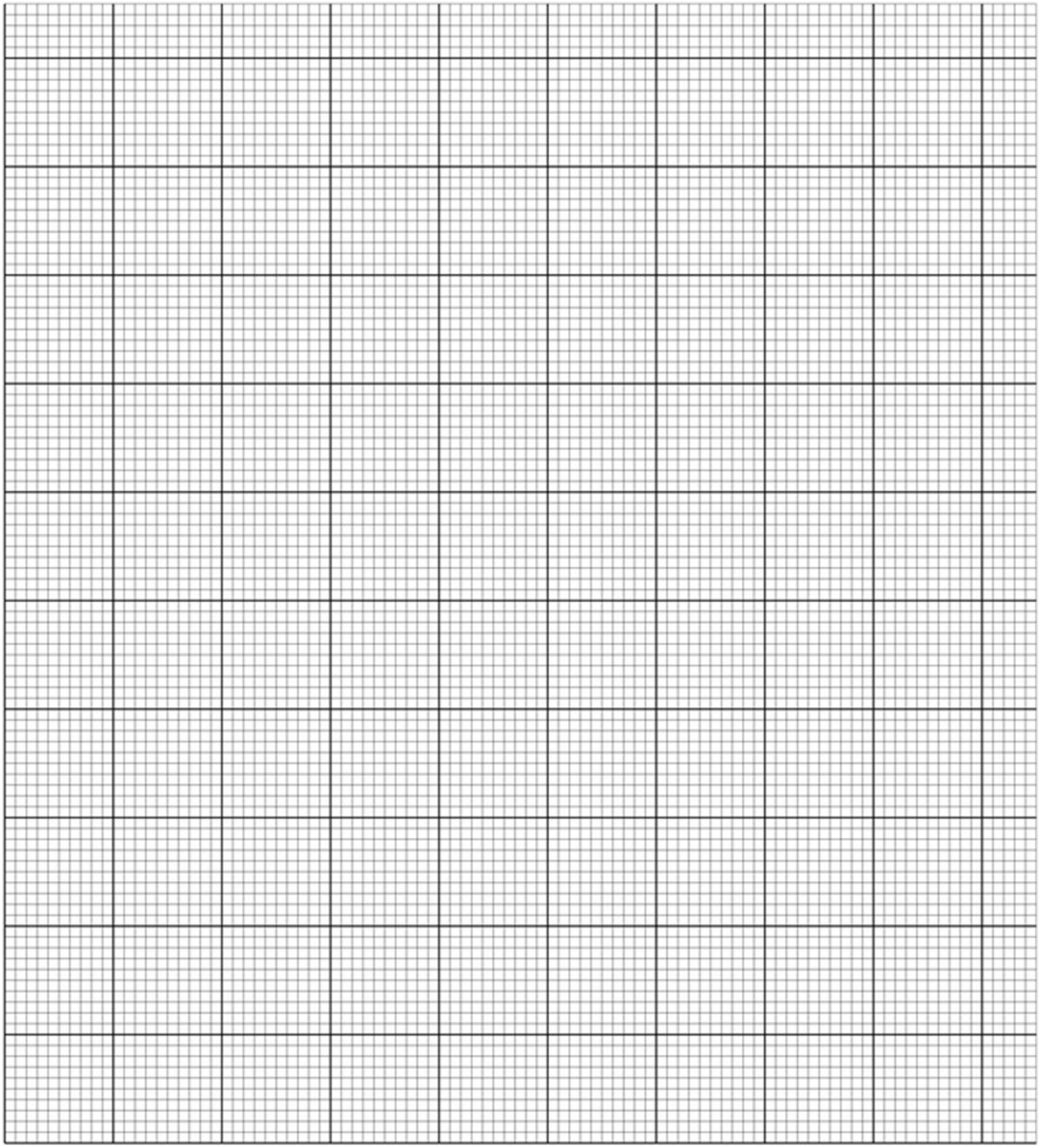








MATHEMATICAL GRAPH PAPER



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FORM ONE HOLIDAYS SMART PASS
MATHEMATICS QUESTION PAPER NO: 01

SECTION 1 (50MARKS)

1. Without using tables or calculator evaluate **(3mks)**

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

2. Three cups can hold 400ml, 450ml and 560ml of milk respectively. Find the capacity of the largest glass that can be used to fill each of the cups in full measure. **(3mks**

3. A number n is such that when it is divided by 27, 30 or 45 the remainder is 3. Find the smallest possible value of n. **(4mks)**

4. Find the greatest number which when divided by 181 and 236 leave a remainder of five in each case. **(3mks**

5. The G,C.D of two numbers is 7 and their L.C.M is 140. If one of the number is 20, find the other number. **(3mks)**

6. (a) List down all prime number between 1 and 10 in descending order to form a number . **(2mks)**

(b) Find the total value of digit 5 in the number formed in (a) above **(2mks)**

7. Evaluate

$$\frac{\frac{2}{5}\div\frac{1}{2}\ \text{of}\ \frac{4}{9}-1\frac{1}{10}}{\frac{1}{8}-\frac{1}{6}\ \text{of}\ \frac{3}{8}}$$ **(3mks)**

8. Evaluate without using tables or calculator. **(4mks)**

$$\sqrt{\frac{0.0625\ x\ 2.56}{0.25\ x\ 0.08\ x\ 0.5}}$$

9. Write the following fraction in descending order **(2mks)**

$\frac{5}{9}, \frac{8}{15}, \frac{4}{7}, \frac{7}{13}$

10. Which of the following numbers are divisible by the numbers in bracket, give a reason in each case.

(i) 270, 430, 510 (3) **(2mks)**

Reason _____

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(ii) 9904, 44344, 348544 (8) **(2mks)**

Reason _____

11. Express the recurring decimals below as fraction **(4mks)**

$0.\dot{3}\dot{2}$

12. Write the following numbers in word. **(2mks)**

(a) 543,654,444

(b) 75, 356, 765, 003

13. Write the following numbers in figures. Nine hundred billion, two hundred and one million , ninety thousands ,four hundred and ten . **(3mks)**

14. To the nearest number indicated in brackets, round off each of the following numbers. **(3mks)**

(a) 607, 890, 567 (1 000)

(b) 65, 745, 344 (10 000)

(c) 146, 789 (100 000)

15. Express $\frac{5}{7} + \frac{7}{12}$ as a decimal. Correct your answer to 3 decimal places. **(3mks)**

16. Write down the value of **(3mks)**

(a) (–3) x (–5) **(b)** (+8) x (–5) **(c)** (–40) ÷ (+8)

SECTION 2 (5O MARKS)

17. (a) Work out

6789 ÷ 13 **(3mks)**

(b) Determine the

(a) Quotient **(1mk)**

(b) Remainder **(1mk)**

(c) Prove that the divided is 6789 in the work out above. **(3mks)**

(d) Convert the following into improper fraction. **(2mks)**

$3\frac{4}{7}$

18. (a) Express the following numbers as product of prime numbers. (leave your answer in power form) **(6mks)**

(i) 1008 **(ii)** 1080 **(iii)** 588

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(b) Using the answer above

Find

(i) The L.C.M of the numbers leaving your answer in power form. **(2mks)**

(ii) The G.C.D of the numbers leaving your answer in power form. **(2mks)**

19.(a) Three friends, Betty, Ann tabby and Tracy decide to buy a car. Betty pays a quarter of the cost , Ann tabby pays a third of the cost and Tracy pays the rest. If Tracy pays sh150 000.

Calculate ;

(i) The cost of the car. **(4mks)**

(ii) How much Betty pays **(2mks)**

(b) Brian uses $\frac{2}{3}$ of his land grazing, $\frac{1}{3}$ of the remainder for planting potatoes and $\frac{1}{10}$ of what is left for other farming activities. If 6.3 hectares of land is unused, determine the size of the land he owns. **(4mks)**

20.(a) A minibus had 25 passengers at the beginning of a journey. Fourteen passengers alighted at the first stop while 11 boarded. Eight of those who boarded at the first stop alighted at the second stop and 14 got in. The minibus did not stop again up to the final destination. The charges from the starting point were sh60 p to first stop, sh80 up to the second stop and sh95 up to the final destination.

(i) How many passengers alighted at the final destination. **(2mks**

(ii) How many passengers were ferried by the minibus through the journey? **(2mks)**

(iii) How much money was collected during the trip? **(4mks)**

(b) A television dealer sold TV set for a total of sh.388 500 at sh18 500 per set. How many TV set were sold? **(2mks)**

21. Perform the following operations using a number line and state the answer.

(a) (–4) + (–2) **(2mks)**

(b) (–7) – (–8) **(2mks)**

(c) (+5) –(–2) **(2mks)**

(d) (+1) + (+4) **(2mks)**

(e) (+5) – (+7) **(2mks)**

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MATHEMATICS QUESTION PAPER NO: 02

SECTION 50 MARKS

1. Add one thousand and fourty four to the product of one thousand and six and one hundred And eighty. **(3 mks)**

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 mks)**

3. Find the L.C.M of $X^2 + X$, $X^2 - 1$, $X^2 - X$. **(3 mks)**

4. Evaluate $\dfrac{-8\div2+12\times9-4\times6}{56\div7\times2}$ **(3 mks)**

5. Evaluate $^{3}/_{8}$ of $\{7^{3}/_{5}-{}^{1}/_{3}(1^{1}/_{4}+3^{1}/_{3})\times2^{2}/_{5}\}$ **(3 mks)**

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 mks)**

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 mks)**

8. Which of the following number is divisible by both 3 and 4? **(3 mks)**
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 mks)**
826049

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

11. Show the following operation on a number line **(2 mks)**
(-7) + (-2) + (+6)
Hence, evaluate the value of, (-7) + (-2) + (+6) **(1 mk)**

12. Change the recurring decimal into fraction, 3.256 **(3 mks)**

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

14. Evaluate, $(^{5}/_{7}\times{}^{2}/_{3})+(^{5}/_{6}-{}^{8}/_{9})\div{}^{7}/_{15}$ of $^{5}/_{6}$ **(3 mks)**

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 mks)**

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 mks)**

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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 mks)**

b) Money spent on school fees. **(1 mk)**

c) Money spent on transport. **(2 mks)**

d) Money spent on electricity and water bills. **(3 mks)**

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 mks)**

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

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

19. Find all the possible values of the missing digit(s) represented by (*) **(10 mks)**

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 mks)**

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

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. **(10mks)**

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 mks)**

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 mk)**

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

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b)



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

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 mks)**

b) How many people:

i) Lost job **(3 mks)**

ii) Got job **(3 mks)**

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

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 mks)**

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)

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FORM ONE HOLIDAYS SMART PASS
MATHEMATICS QUESTION PAPER NO: 03

SECTION I (30 MARKS)

Answer all the questions from this section

1. Write the following numbers in figures

(a) Ten thousands and ten **(1 mk)**

(b) One hundred and two billion, three hundred and sixty five million, four hundred and seventy eight thousands and one **(1 mk)**

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

(a) Write down the number formed. **(1 mk)**

(b) State the total value of the second digit in the number formed in (a) above **(1 mk)**

3. Express 7056 as a product of its prime factors leaving your answer in power form**.** **(3mks)**

4. Three bells ring at an interval of 9 minutes, 15 minutes and 21 minutes. The bells will next ring together at 11.00pm. Find the time the bells had last rang together? **(3mks)**

5. Three tanks are capable of holding 108 litres, 168 litres and 180 litres of milk. Determine the capacity of the greatest vessel which can be used to fill each one of them an exact number of times. **(3 mks)**

6. Test whether 1 478 019 is divisible by 11. **(2 mks)**

7. Evaluate. **(3 mks)**

$$\frac{-16 \div 4 + 6 \times 14 - 2 \times -5}{84 \div 14 \times 3}$$

8. Evaluate **(2 mks)**

$$\frac{1}{3} of \left(\frac{5}{6} - \frac{1}{4}\right) \div \frac{1}{12}$$

9. Express the recurring decimal below as a fraction in simplest form. **(3 mks)**

$0.2\dot{3}$

10. Evaluate using tables of square roots **(3 mks)**

$\sqrt{0.792}$

11. Without using mathematical tables or calculator evaluate **(4 mks)**

$$\sqrt{\frac{0.0625 \times 2.56}{0.25 \times 0.08 \times 0.5}}$$

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SECTION II (20 MARKS)

Answer ALL the questions from this section

12. 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 has sh.8400, calculate

a) His total January salary. **(4 mks)**

b) Money spent on school fees. **(2 mks)**

c) Money spent on transport. **(2 mks)**

d) Money spent on electricity and water bills. **(2 mks)**

13. A bookstore has 30 816 exercise books which were packed in cartons. Each carton contained 24 exercise books. The mass of an empty carton was 2kg and that of a full carton is 12kg.

(a) How many cartons ware there? **(2 mks)**

(b) What was the total mass of the empty cartons? **(2 mks)**

(c) What was the total mass of books in one carton? **(2 mks)**

(d) What was the total mass of all the exercise books? **(2 mks)**

(e) What was the mass of one exercise book in kg to 2 decimal places? **(2 mks)**

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MATHEMATICS QUESTION PAPER NO: 04

1.a) State the place value and total value of the underlined digit in **4 7 <u>3</u> 6 4 5** **(2mk)**

b) Write the number in (a) above in words **(2mks)**

2. Evaluate $\frac{¾ + 1\frac{5}{7} \div \frac{4}{7} \text{ of } 2\frac{1}{3}}{(1\frac{3}{7} - \frac{5}{8}) \times \frac{2}{3}}$ **(4mks)**

3. Cherono spent Sh. 207 to buy seven books and four pencils. While Kibet spent 165 to buy five books and five pencils of the same type. Find the cost of each item. **(4mks)**

4. Evaluate $\frac{-8 \div 2 + 12 \times 9 - 4 \times 6}{56 \div 7 \times 2}$ **(3mks)**

5. Mutai leaves behind 50 hectares of land and sh. 120,000 savings in his will. The land was sold at sh. 80,000 per hectare. If his wife gets sh. 520,000 and the rest is divided equally among his four sons and two daughters, how much money does each child get? **(4mks)**

6. Three tanks are capable of holding 60, 90 and 180 litres of water. Determine the capacity of the greatest vessel which can be used to fill each of them exactly. **(3mks)**

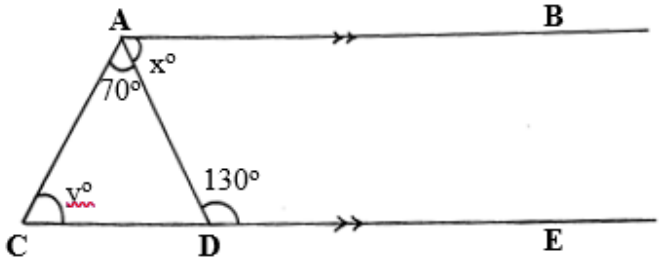
7. Two toilets are designed to flush automatically at intervals of 6 and 8 minutes. After how long will they next flush at the same time? **(2mks)**

8. Convert $0.\dot{1}\dot{5}$ into **(2mks)**

9 Solve the equation. **(4mks)**

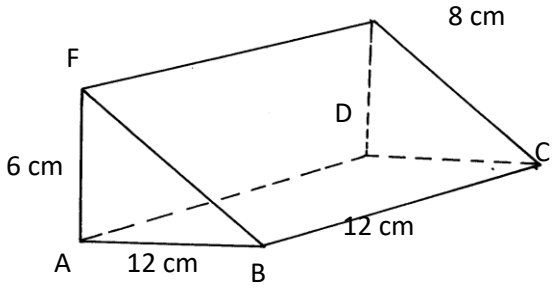
$$\frac{x+1}{2} + \frac{2x+1}{3} = 9$$

10. Find the value of the angles marked x and y in the figure below.
Give reasons for your answer. **(2mks)**



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11. The figure below show s a right angled triangular prism of uniform cross- section AF = 6cm, AB = BC = 12cm and CE = 8cm. Find the surface area of the prism. **(4mks)**



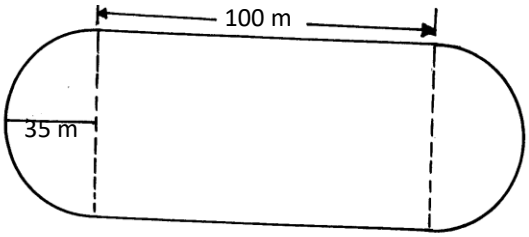
12 Find the value of the expression. **(3mks)**

$$\frac{3a - 2b + 2(a^2 - 3b)}{4a - 2b}$$

When a = 2 , and b = 3.

13. A,B, and C are three quantities such that A: B = 3: 2 and B:C = 4:5
Find the ratio A:B:C **(2mks)**

14. A running track of length 100m is the shape of a rectangle with two semicircular ends of radius 35cm each as shown in the figure below. A long distance runner ran 25 times round the track. What distance did he cover in Kilometers? **(4mks)**

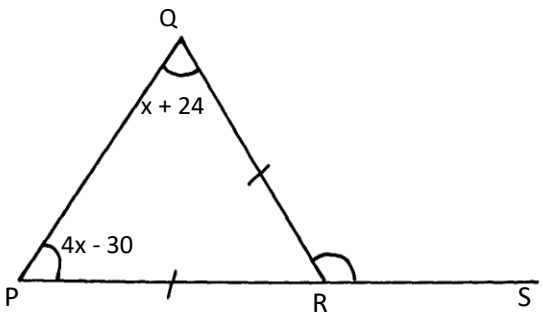


15. A commercial bank buys and sells U.S dollars in Kenya Shillings at the rate below.

Buying	**Selling.**
Sh. 74	sh.79

A tourist at the end of his tour of Kenya was left with sh. 30,000 which he converted to U.S dollars. How many U.S dollars did he get? **(2mks)**

16. In the figure below, $\angle$ RPQ = $(4x - 30)^o$ $\angle$ PQR = $(x + 24)^o$. Given that PR = QR, Find $\angle$ QRS (3mks)



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SECTION II (50MARKS)

17. Using a ruler and a pair of compasses only;

(a) Construct triangle PQR in which PQ = 5cm, QR = 8cm and angle QPR = 45° **(4mks)**

(b) Measure line PR and angle PQR **(2mks)**

(c) i) Construct a perpendicular from Q to meet line PR at S and measure QS **(2mks)**

ii) Hence, find the area of triangle PQR **(2mks)**

18. (a) Express the following numbers as products of prime factors using power notation. **(4mks)**

(i) 5148 **(ii)** 6084

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

ii) Find H.C.F and L.C.M of 5148 and 6084. **(2mks)**

(c) Leaving your answers in (i) and (ii) in Prime factor from.

19. The height and the radius of a cylindrical water tank are 10m and 5m respectively.

(a) (i) Find the capacity of the tank in litres. (Take $\pi = 3.142$) **(3mks)**

(ii) Water was allowed into the empty tank at a constant rate of 29 litres per second at 2030hrs. What time will the tank be completely full? Give you answer in 12hrs system **(4mks)**

b) An institution uses an average of 250,000 litres each a day. How many complete days will a full tanks last the institution **(3mks)**

20 (a) The angle of elevation from a point A to the top of building 5m away is 45°. Another point B is 4m from A. By scale drawing determine.

(i) The angles of elevation from point B

(ii) The height of the building **(6mks)**

(b) A man who is in elevator half way the building notices a lorry approaching the building at an angle of depression 20°. Use the scale drawing to determine how far the lorry is from the foot of the building **(4mks)**

21 a) A large scale farmer uses ½ of his land to plant maize, 1/5 for planting beans ,1/3 of the remainder for grazing and the rest for horticultural farming. If he use l0 hectares for grazing, determine how much land he uses for horticultural farming. **(4mks)**

(b) Kirui left sh2,116,800 in his will to be shared between his wife daughter and son in the ratio 1: 2:3. His wife decided to divide her share equally between her daughter and son. Find how much the son finally got. **(6mks)**

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22) Rono bought a second hand car and later sold it through a sales agent who charged 7 ½ % commission on the price of the car, he received sh. 222,000 from the agent after the latter had deducted his commission. Rono incurred a loss of 25% on the price at which he had bought the car.

a) Calculate the price at which the agent sold the car. **(3mks)**

b) Find the price at which Rono had bought the car **(2mks)**

c) If, the amount Rono paid for the car was 26% less than the price of the new car, calculate the price of the new car. **(3mks)**

d) Express as a percentage the amount Rono received for his car to its price when new. **(2mks)**

23. The tables below represent linear relations between **x** and **y**. In each table some values of y against **x** are given and the corresponding point (x, y) also given.

$2x - y = 3$

x	-4	-2	0	3	5	7	8
y=2x -3	-11				7		
Point	(-4,-11)				(5,7)		

$3x - 2y = 4$

x	-2	0	2	4	6	8	10
$y=\frac{3x-4}{2}$		-2					13
Point		(0,-2)					(10,13)

a) Copy and complete each table **(2mks)**

b) Using a suitable scale plot the points from each table on the same grid and hence draw the straight line representing each relation (**5mks)**

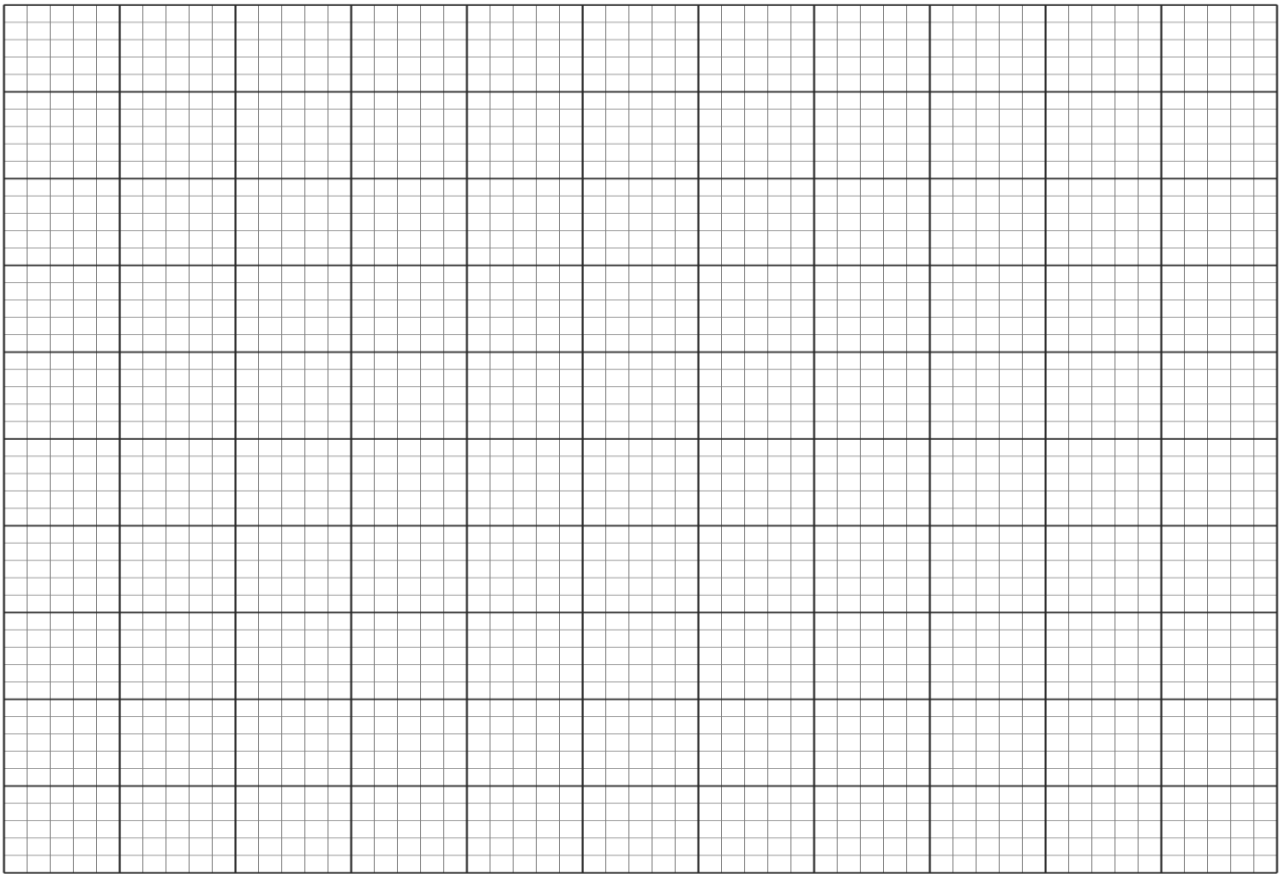
c) Use your graph to solve the simultaneous equations

2x – y = 3

3 x – 2y = 4

d) The line whose equation is **2x – y = 3** cut's the x – axis and the y – axis at P and Q respectively. From you graph state the coordinates of P and Q. **(2mks)**

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24. A bus left Nairobi on Thursday evening and traveled to Dar-es-salam according to the travel time table below and arrived there on Saturday morning.

Nairobi	Dep 2015 h
Namanga	Arr: 2325h
	dep: 0310h
Arusha	Arr: 0640h
	Dep: 0820h
Dodoma	Arr: 2100h
	Dep: 2255h
Dar – es – Salam	Arr: 1015h

a) Determine the total

i) Traveling time for the whole journey **(3mks)**

ii) Stoppage time in all stations **(3mks)**

iii) Time taken for the whole journey **(2mks)**

b) Given that the average speed of the bus for the whole journey is 60km/h, calculate the distance between Nairobi and Dar-es- salaam **(2mks)**

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MATHEMATICS QUESTION PAPER NO: 05

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)**

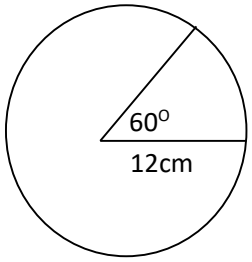
a. 0.001576 **b.** 325.87

5. Use tables to find the:

a. Square of 36.21 **(2mks)**

b. 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)**

$$^{11}/_{12},\ ^{5}/_{6},\ ^{2}/_{3},\ ^{5}/_{6}$$

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

11. Express the following as a fraction.

a. $0.67^{\cdot}$ **(3mks)**

b. $2.8\dot{3}^{\cdot}$ **(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^{O}. Find the number of sides of the polygon and give its name. **(3mks)**

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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 yet 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)

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	

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

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

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

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

17. Daniela spent ¼ of her net January salary on school fees. She spent ¼ of the remainder on electricity and water bills. She then spent $^1/_9$ 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)**

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MATHEMATICS QUESTION PAPER NO: 06

SECTION I (50 MARKS)

1. Evaluate : $\frac{-12\div(-3)\times4-(-20)}{-6\times6\div3+(-6)}$ **(3mks)**

2. Factorize each of the following expression

a) 3px-4ap +3qx-qy **(2mks)**

b) 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 ⅓ of the total amount, Mliwa contributed ⅜ 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)**

⅞ , 5⁄6, 7⁄12, 2⁄3

6. Evaluate the following **(3mks)**

$$\frac{2.4\times3.2\times0.0096}{0.018\times0.064\times96}$$

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)**

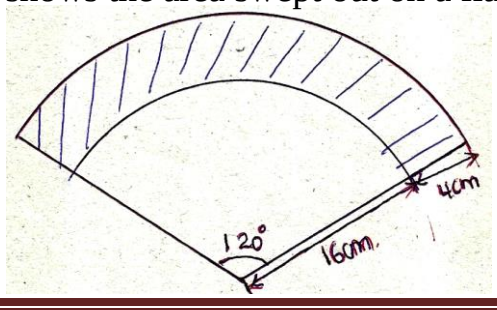
8. Three bells ring at intervals of 20 minutes, 30 minutes and 45 minutes. The bells will ring together at 12.40 pm. Find the time the bells had last rang together. **(3mks)**

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

10. Express $3.2\dot{5}\dot{6}$ as a fraction **(3mks)**

11. Use mathematical tables to find the squareroot 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)**



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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 Pie =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

a) His mass **(2mks)**

b) 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:

i. The surface area of the cuboid

ii. Its volume

Given that it measures 6cm by 3cm by 2cm. **(10mks)**

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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:

i. Surface area of the tin **(3mks)**

ii. The capacity of the tin **(3mks)**

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

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

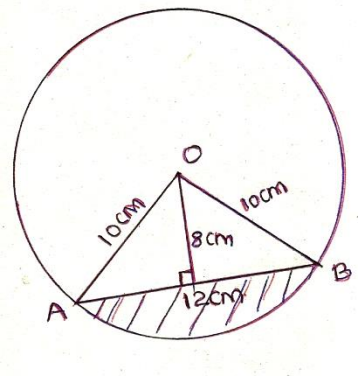
19. A cylindrical water tank with no top was constructed. If the diameter of the tank was 2.8m and height 4.8m. calculate:

a) Its volume **(3mks)**

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

c) 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 $<AOB=120^0$, calculate

i. Area of the minor sector **(3mks)**

ii. Area of the triangle OAB **(2mks)**

iii. Area of the shaded region **(2mks)**

iv. By calculating the area of the circle first, calculate the area of unshaded region **(3mks)**

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MATHEMATICS QUESTION PAPER NO: 07

1. Write 27707807 in words. **(2mks)**

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

a) 2/4 and 3/6 **(1mk)**

b) 60/25 and 60/132 **(1mk)**

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

a) 1 **(1mk)**

b) 8 **(1mk)**

c) 7 **(1mk)**

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

5. Evaluate $\left\{\left(1\frac{1}{4}-\frac{3}{8}\right)\div 2\frac{1}{2}+1\frac{3}{4}\div 1\frac{1}{4}\right\}$ **(3mks)**

6. A car consumes $8\frac{5}{8}$ litres of petrol to cover $51\frac{3}{4}$km. what average distance does it travel for every distance? **(4mks)**

7. Use the symbols <,>, or = to compare the following integers.

a) -2 and -3 **(1mk)**

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

c) 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:

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

b) $\frac{1}{4}$ **(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**

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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) $1\frac{3}{4}$ **(2mks)**

b) $2\frac{6}{7}$ **(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)

17.a) A two digit number is such that the ones digit is $1\frac{1}{4}$ 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:

a) The second time **(6mks)**

b) The 5^{th} time **(4mks)**

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

i) 3.45x20.54 **(2mks)**

ii) 34.5x20.54 **(2mks)**

iii) 345x205.4 **(2mks)**

iv) 3.45x205.4 **(2mks)**

b) state the value of second digit in the product 67.5x44.4. **(2mks)**

20.a) When a number is divided into by 8,9,and 6 the remainders are 7, 8 and 5 respectively. Find the number. **(6mks)**

b) The L.C.M of three numbers is 24 and their G.C.D is 4. If two of the numbers are 8 and , find the other number**.** **(4mks)**

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

a) 390 **(2mks)**

b) 441 **(2mks)**

c) 6732 **(2mks)**

d) 7544 **(2mks)**

e) 5310 **(2mks)**

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22. Express the following numbers in powers of their prime factors:

a) 196 **(2mks)**

b) 196 **(2mks)**

c) 196 **(2mks)**

d) 196 **(2mks)**

e) 196 **(2mks)**

23. Three boys shared some money. The youngest got 1/12 of it, the next got 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,

a) 370 (1000) **(2mks)**

b) 2499 (10) **(2mks)**

c) 38679 (10000) **(2mks)**

d) 473678 (100) **(2mks)**

e) 501 (1000) **(2mks)**

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MATHEMATICS QUESTION PAPER NO: 08

SECTION 1(50MKS)

1. Evaluate without using a calculator.

$$\frac{4\ of\ 20+10\div-5\times6}{6\times9-4\div2+12}$$ **(3mks)**

2. $\frac{0.24+(-0.3\times-0.81)}{0.08\div0.4}$ **(3mks)**

3. a) Find the H.C.F of 36 and 54 **(1mk)**

b) If three numbers 36,54 and another number have a G.C.D of 6 and L.C.M of 216, find the other number **(2mks)**

4. a) Simplify the expression **(3mks)**

$$\frac{3x+4}{4}+\frac{x+1}{2}-\frac{2x+8}{3}$$

b) Solve for x in the equation below.

$2(x+4) = 14$ **(2mks)**

5. Use a number line to work out the following: **(2mks)**

i) 3+-4 **ii)** 5 - - 2

6. The length of an arc of a circle is 88cm. Find the radius of the circle if the arc subtends an angle 144° at the centre (Take $\pi = 22/7$) **(3mks)**

7. Four men can build a stone wall 32m long in 12 days . What length of wall can eight men, working at the same rate , build in eight days.Give your answer to 4 significant figures **(3mks)**

8. A shopkeeper made a loss of 20% by selling a trouser at Sh. 960 . What profit would he have made if he had sold it at sh.1500 **(3mks)**

9. A girl spent $^{2}/_{5}$ of her pocket money on bread and $^{1}/_{6}$ of the remainder on stationery. If she had Ksh. 200 left at the end of the term, how much pocket money did she have at the beginning of the term. **(3mks)**

10. Small cubes of of edge 2cm are to be packed into a rectangular container measuring 6 cm by 5 m and 4 m.How many cubes are required ? **(3 mks)**

11. If a: b =2: 3 and b: c=5:9 , find the ratio a:c **(2mks)**

12. Express $0.\dot{4}0\dot{7}$as a fraction. **(3mks)**

13. Three bells ring at intervals ring at intervals of 40 minutes,45 minutes and 60 minutes.If they ring simultaneously at 6.30 am,at what time will they ring next together? **(3mks)**

14. The area of 10 square plots is 160 ares .Find the length in metres of the side of each plot **(3mks)**

15. Find the perimeter of a circular protractor whose radius is 14 cm **(3mks)**

16. Convert the following decimals into percentage **(3 mks)**

(i) 0.67 **(ii)** 1.25 **(iii)** 0.167

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SECTION II (50MKS)

17.(a) A cylindrical can of diameter 20 cm and height 60cm is filled with water using a cylindrical jar of diameter 10 cm and height 8 cm. How many jarfuls will fill the can? **(5mks)**

(b) Find the the surface area of an isosceles triangular prism of length 25 cm ,height 4.5 cm and base 6 cm **(5 mks)**

18. (a) Find the area of the sector of a circle of radius 3 cm if the angle subtended at the centre at the centre is 140^0 .(Take pie=22/7) **(4mks)**

(b) A minor arc of a circle subtends an angle of 105^0 at the centre of the circle.If the radius of the circle is 8.4 cm,find the length of the major arc **(3 mks)**

(c) Calculate the surface area of a rectangular tank measuring 5.4 cm long,3.6 cm width and 1.8 cm high. **(3 mks)**

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

(i) Write down the number formed **(2 mks)**

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

(b) The lengths of wires were 30 m,36 m and 84 m.Pieces of wire of equal length were cut from the three wires.Calculate the least number of pieces obtained. **(6 mks)**

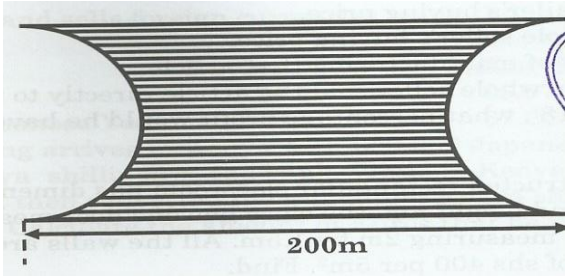
20.(a) When a certain number is divided by 30,45 or 54 there is always a remainder of 21. Find the number **(4 mks)**

(b) A square toilet is covered by a number of whole rectangular tiles of sides 60 cm by 48 cm. Calculate the least possible area of the room in square metres **(3 mks)**

(c)(i) Express 1050 in terms of its prime factors **(1 mk)**

(ii) Determine the smallest positive number such that 1050P is a perfect square **(2 mks)**

21. The following figure represents a piece of land . The two ends are semicircles of radius 70m each.



a) Calculate

(i) The perimeter of the land **(2mks)**

(ii) The area of the land in hectares **(3mks)**

b) A private developer bought this piece of land at a price of Ksh 5,000,000 per hectare and later sold the all land at Kshs. 14,760,000. Determine

(i) The price at which he bought the whole piece of land **(2mks)**

(ii) His percentage profit **(3mks)**

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MATHEMATICS QUESTION PAPER NO: 09

SECTION A 50 MARKS

1. Ayub travelled part of the journey by train and the rest of the journey by bus. The total fare was Ksh 4000. On return, the fare of the bus was hiked by a half of what he had paid and the total fare of the return journey hiked to Ksh 4800. Find the train fare. **(3mks).**

2. When 19346 is divided by a number, the quotient is 841 and the remainder is 3. What is the number? **(3mks).**

3. A square toilet is covered by a number of whole rectangular tiles of sides 60cm by 48cm. Calculate the least possible area of the room in square metres. **(3mks).**

4. Evaluate $\frac{1470^2}{\sqrt{7056}}$ 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 $38.5cm^2$. Find the radius of the circle if the angle subtended at the centre is 90^0. (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)

a) 36.7892

b) 0.09854

c) 345204

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

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

$2\frac{7}{8}$, $\frac{14}{5}$, 3, $\frac{17}{9}$

SECTION B 50 MARKS

17. A rectangle measures 18cm by 12cm.

(a) If each dimension is reduced by 2cm, by what percentage is:

i). The perimeter reduced. **(3mks)**

ii). The area of the rectangle reduced. **(3mks)**

(b) 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 $y = 8 - \frac{7}{2}x$ **(4mks)**

(c) Use the graph to solve the simultaneous equations; **(2mks)**

$y = 2x - 3$

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

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)**

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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.

a) Determine the:

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

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

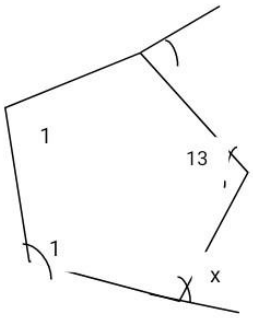
b) Identical cylindrical tins of diameter 10cm and height 20cm with a mass of 120g each were packed in the box. Calculate;

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

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

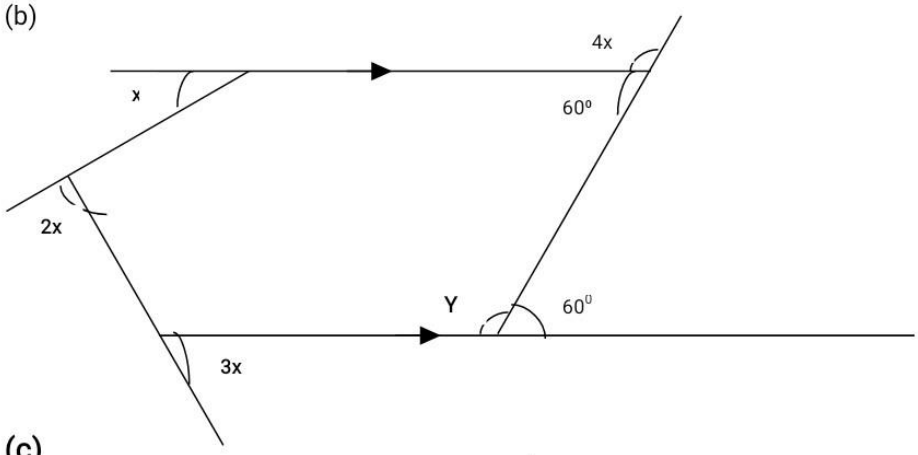
21. Find the size of the angles marked with letters.

(a) **(a)** **(1mk)**



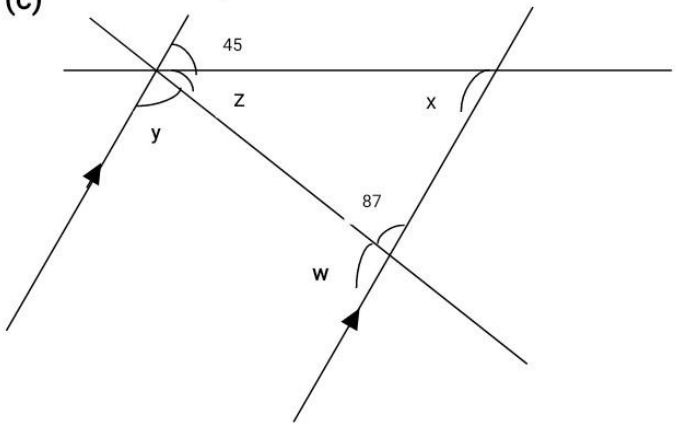
(b) **(5mks)**

(b)



(c) **(4mks)**

(c)



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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;

i). After how long will they next sound together? **(3mks).**

ii). What time will this be? **(1mks)**

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MATHEMATICS QUESTION PAPER NO: 10

Attempt all the questions in the spaces provided.

1. Solve for x in the equation: **(3 mks)**

$32^{(x-3)} \times 8^{(x+4)} = 64 \div 2^x$

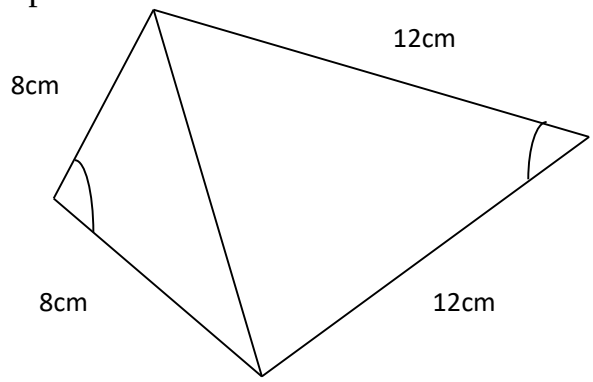
2. Simplify without using a calculator or a mathematical table

$$\frac{\sin 90^o \cos 45^o}{\sin 45^o}$$ **(2 mks)**

3. A line which joins the point A(3, k) and B(-2, 5) is parallel to another line whose equation is $5y + 2x = 10$. Find the value of K. **(3 mks)**

4. A group of 5 people can do a piece of work in 6 hours. Calculate the time a group of 8 people, working at half the rate of the first group could take to complete the same work. **(3 mks)**

5. Calculate the area of the shape below. **(3 mks)**



6. The length of a minute hand of a clock is 3.5cm. Find the angle it turns through if it sweeps an area of 48cm. (Take $\pi = 22/7$) **(2 mks)**

7. Two years ago, Jane was twice as old as John. If the sum of their ages 5 years from now will be 44 years, calculate their present ages. **(3 mks)**

8. Express $1.\dot{9}\dot{3} + 0.2\dot{5}$ as a single fraction. **(3 mks)**

9. The surface area of two similar bottles are $12cm^2$ and $108cm^2$ respectively. If the larger one has a volume of $810cm^3$, find the volume of the smaller one. **(3 mks)**

10. Simplify the following expression

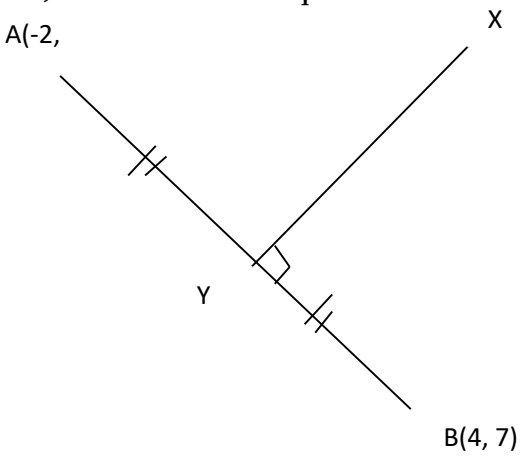
$$\frac{7x - 7xy}{7 - 7y}$$ **(2 mks)**

11. Use mathematical tables to evaluate: **(4 mks)**

$$\sqrt{\frac{1.794 \times 0.038}{12.43}}$$

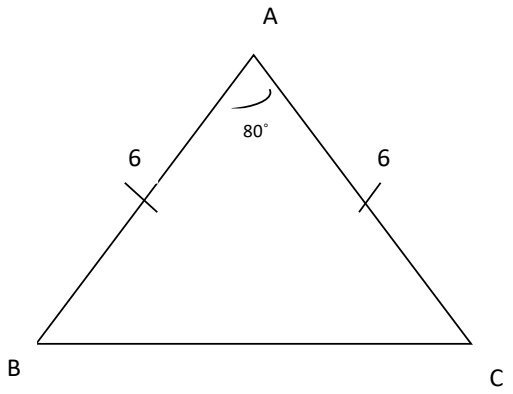
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12. In the diagram below, determine the equation of the line XY in the form y = mx + c **(3 mks)**



13. An aircraft flying onto an airport calls out the control tower and says it is at height of 500m above the tower. If its horizontal distance from the tower is 8km, calculate the angle of elevation from the tops of the tower. **(3 mks)**

14. The figure bel A shows an isosceles triangle in which AB = AC = 6cm. Angle BAC = 80˚. Calculate the length of BC. **(3 mks)**



15. Solve the equation. **(1 mk)**

Sin y2 = Cos 26˚

SECTION II(30 MARKS)

Choose any three questions only.

16. The vertices of a triangle PQR are P(0, 0) Q(6,0) and R(2,4)
    (a) Draw triangle PQR on the grid provided. **(1 mk)**
    (b) Triangle P'Q'R' is the image of a triangle PQR under an enlargement scale factor ½ and centre (2,2) write down the coordinates of P'Q'R' and plot on the same grid. **(3 mks)**
    (c) Draw triangle P"Q"R" the image of triangle P'Q'R' under a positive quarter turn about point (1,1) **(3 mks)**
    (d) Draw triangle $P^{III}Q^{III}R^{III}$ the image of P"Q"R" under a reflection in the line y = 1.

17. In a school, there are 1250 students, each student contributed sh 380 towards a welfare programme. The money contributed was used to purchase 75 bales of maize flour which was shared equally among 50 families. One bale of maize flour contains 12 packets and costs sh 1050. The remaining amount was shared equally among 125 students as bursary. Calculate:

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(a) The total amount collected. **(2 mks)**
(b) The total number of maize flour bought **(2 mks)**
(c) The number of packets each family got. **(2 mks)**
(d) The amount of money that remained. **(2 mks)**
(e) The amount of bursary that each student got. **(2 mks)**

18. Find the area in hectares of a maize field whose measurements are shown in the field book below. The baseline PQ is 300m long. **(10 mks)**

	Q	
	250	70B
C100	180	
	80	150A
	P	

19. The marked price of a sewing machine is sh 30,000. A discount of 10% is given on cash payment. The sewing machine can also be bought on hire purchase. The hire purchase terms requires a deposit of sh 10500 followed by 12 equal monthly installments of sh 2150 each.

(a) Calculate:

(i) The cash price of the sewing machine. **(2 mks)**
(ii) The hire purchase value of the sewing machine. **(3 mks)**

(b) Korir bought the sewing machine by cash while Akinyi bought it on hire purchase. How much did Akinyi pay for the machine than Korir? **(3 mks)**

(c) Calculate the percentage increase in hire purchase price over the marked price. **(2 mks)**

20.(a) Complete the following tables for the equations:

(i) $y = 5x - 7$
(ii) $y = 9 - 3x$

Table 1

X	-2	-1	0	1
y		-12		7
(x,y)		(-1, -12)	(0, -7)	

Table 2

X	-2	-1	0	1
y	13			7
(x,y)	(-2, 13)			(1, 7)

(b) On the same grid, draw the graphs of: **(4 mks)**

(i) $y = 5x - 7$
(ii) $y = 9 - 3x$

(c) Use your graphs to solve the following simultaneous equations. **(2 mks)**

$5x - y = 7$
$3x + y = 9$

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