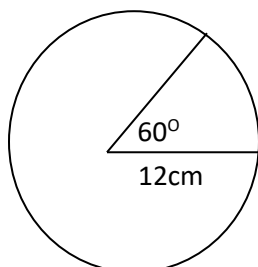


MATHEMATICS
FORM 1
(MARKING SCHEME)

1. Write in words 437 308 041. (2mks)
Four hundred and thirty seven million three hundred and eight thousand and forty one.
2. Test whether the number 24831 is divisible by 3. (3mks)
24831
 $2+4+8+3+1=18/3=6$ it is divisible by 3
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)
2 36 84 90
3 18 42 45
6 14 15
GCD = 2 X 3 = 6 litres
4. Write the following in standard form. (2mks)
 - a. 0.001576
 1.576×10^{-3}
 - b. 325.87
 3.2587×10^2
5. Use tables to find the: (2mks)
 - a. Square of 36.21 (2mks)
 $36.21^2 = (3.621 \times 10^1)^2$
 $3.621^2 \times 10^2$
 $13.111 \times 10^2 = 1311.1$
 - b. Square root of 0.0293 (2mks)
 $0.0293^{1/2} = (2.93 \times 10^{-2})^{1/2}$
 $2.93^{1/2} \times 10^{-1}$
 1.7117×10^{-1}
0.17117
6. Find the perimeter of the figure below. (3mks)



$$^{300}/_{360} \times 2 \times ^{22}/_7 \times 12 = 62.8571$$

$$\text{Perimeter} = 62.8571 + 12 + 12 = 86.8571 \text{ cm}$$

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

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

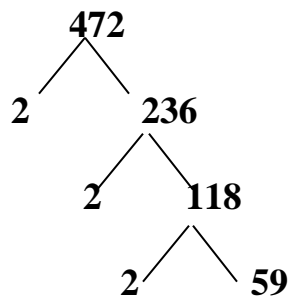
$$X$$

$$\frac{3YZ}{X} = \frac{3 \times -6 \times 4}{-2} = \frac{-72}{-2} = 36$$

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

- a. 472

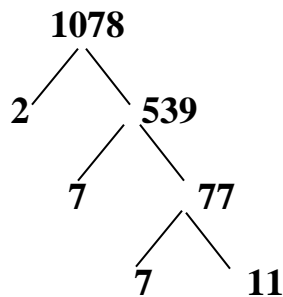
(2mks)



$$472 = 2^3 \times 59$$

- b. 1078

(2mks)



$$1078 = 2 \times 7^2 \times 11$$

9. Arrange the following fractions in ascending order.

(2mks)

$$^{11}/_{12}, ^{5}/_6, ^{2}/_3, ^{5}/_6$$

$$^{11}/_{12} \times 2, ^{5}/_6 \times 12, ^{2}/_3 \times 12, ^{5}/_6 \times 12$$

$$11, 10, 8, 10$$

$$\text{Ascending order: } ^{2}/_3, ^{5}/_6, ^{5}/_6, ^{11}/_{12}$$

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

$$x + x + 1 + x + 2 = 84$$

$$3x + 3 = 84$$

$$3x/3 = 81/3$$

$$X = 27, \text{ the numbers are : } 27, 28 \text{ and } 29$$

11. Express the following as a fraction.

- a. $0.6\overline{7}$ (3mks)

$$\text{Let } r = 0.6\overline{777}$$

$$10r = 6.7\overline{77}$$

$$100r = 67.7\overline{77}$$

$$100r - 10r = 67.7\overline{77} - 6.7\overline{77}$$

$$\underline{90r = 61/90}$$

$$90r$$

$$r = 61/90$$

- b. $2.8\overline{3}$ (3mks)

$$\text{Let } r = 2.8\overline{38383}$$

$$10r = 28.3\overline{83838}$$

$$100r = 283.8\overline{38383}$$

$$100r - r = 283.8\overline{38383} - 2.8\overline{38383}$$

$$\underline{99/99r = 281/99}$$

$$R = 281/99 \text{ or } 2 \frac{83}{99}$$

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)

$$7e + 4p = 207 \dots \times 5$$

$$5e + 5p = 165 \dots \times 4$$

$$35e + 20p = 1035$$

$$\underline{20e + 20p = 660}$$

$$\begin{array}{r} 15/15e \\ 375/15 \end{array}$$

$$e = 25$$

$$7(25) + 4p = 207$$

$$175 + 4p = 207$$

$$\underline{4/4p = 32/4}$$

$$P = 8$$

The cost of 1 exercise book = shs. 25 and the cost of a pen sh. 8.

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)

$$(22n - 4) 90 = 720/90$$

$$\begin{aligned} & \underline{\quad\quad\quad} \\ & \quad \mathbf{90} \\ \mathbf{2n - 4} &= \mathbf{8} \\ \mathbf{\frac{2}{2}n} &= \mathbf{\frac{12}{2}} \\ \mathbf{n} &= \mathbf{6} \end{aligned}$$

number of sides = 6. hexagon

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)

$$\begin{aligned} \mathbf{1 \text{ US dollar}} &= \mathbf{sh. 78.4744} \\ \mathbf{5000 \text{ dollar}} &= \mathbf{\frac{5000 \times 78.4744}{1}} \\ &= \mathbf{sh. 392\ 372} \end{aligned}$$

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

$$\begin{aligned} \mathbf{5000 - 1000 - 1750} &= \mathbf{2250 \text{ dollars}} \\ \mathbf{1 \text{ US dollar}} &= \mathbf{sh. 78.4133} \\ \mathbf{2250 \text{ dollars}} &= \mathbf{\frac{2250 \times 78.4133}{1}} \\ &= \mathbf{sh. 176\ 429.90} \end{aligned}$$

15. Solve the following pair of simultaneous equations graphically. (6mks)

$$\begin{aligned} 2x - y &= 3 \\ \mathbf{2x - y} &= \mathbf{3} \\ \mathbf{x} & \mid \mathbf{0 \quad 3} \\ \mathbf{y} & \mid \mathbf{-3 \quad 3} \\ \mathbf{X + 2y} &= \mathbf{14} \\ \mathbf{x + 2y} &= \mathbf{14} \\ \mathbf{x} & \mid \mathbf{0 \quad 4} \\ \mathbf{y} & \mid \mathbf{7 \quad 5} \end{aligned}$$

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	

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

$$\begin{array}{r} 1000 \\ - 0830 \\ \hline 130 \end{array} = 1 \text{ hr } 30 \text{ mins}$$

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

$$\begin{array}{r} 1340 \\ - 1310 \\ \hline 30 \end{array} = 30 \text{ mins}$$

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

$$\begin{array}{r} 1600 \\ - 1200 \\ \hline 400 \end{array} = 4.00 \text{ pm}$$

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

$$\begin{array}{r} 1600 \\ - 0830 \\ \hline 730 \end{array} = 7 \frac{1}{2} \text{ hrs or } 15 \frac{1}{2} \text{ hrs}$$

Average speed = $\frac{\text{total distance covered}}{\text{Total time taken}}$

$$= \frac{300}{15 \frac{1}{2}}$$
$$= 40 \text{ km/h}$$

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)

$$\frac{1}{4} \times \frac{3}{4} = \frac{3}{16}$$

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

$$\frac{1}{4} + \frac{3}{16} = \frac{7}{16}$$

$$\text{Remaining} = \frac{16}{16} - \frac{7}{16} = \frac{9}{16}$$

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

$$\frac{1}{9} \times \frac{9}{16} = \frac{1}{16}$$

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

$$\frac{7}{16} + \frac{1}{16} = \frac{1}{2}$$

$$\frac{1}{2} \rightarrow \mathbf{3400}$$

$$1 \rightarrow \frac{\mathbf{1 \times 3400}}{\frac{1}{2}}$$

$$= \mathbf{sh. 6800}$$