KOLFRAM EDUCATIONAL SERVICES KAMPALA

PRE NATIONAL MOCK EXAMINATION **2024**

SET FIVE (BLUE PRINT)

MATHEMATICS MARKING GUIDE

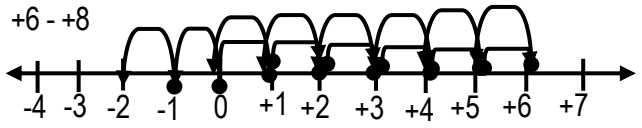
SECTION A

1.

$$\begin{array}{r} 402 \\ +143 \\ \hline \mathbf{455} \end{array}$$

2.

+6 - +8



+6 - +8 = **-2**

3.

$$3\overline{)2727}\quad 909$$

-27

0027

-27

00

4.

4783

+10

4793

5.

Ratio of Girls to Boys

5 : 6

Total ratio = (5 + 6) = 11

$\frac{5}{11} = 20$

Let the total number of children in the class be **y**

$\frac{\cancel{11}}{\cancel{5}} \times \frac{\cancel{5}}{\cancel{11}} \times y = 20 \times \frac{11}{5}$

$y = \cancel{20} \times \frac{11}{\cancel{5}}$

4 x 11 = 44 children are in the class

6.

x + 2x + 30 = 180

3x + 30 = 180

3x + 30- 30 = 180-30

$\frac{3x}{3} = \frac{150}{3}$

$x = 50^0$

7.

Modal mark is 4

8.

$\frac{2}{9} + \frac{4}{9} = \frac{2+4}{9}$

$= \frac{6}{9}$

9.

2	24
2	12
2	6
3	3
	1

24 = 2 x 2 x 2 x 3

10.

Probability = $\frac{\text{Sample space}}{\text{Possible outcomes}}$

Sample space= (Number of good eggs) = 5

Possible outcomes(all eggs) 4+5

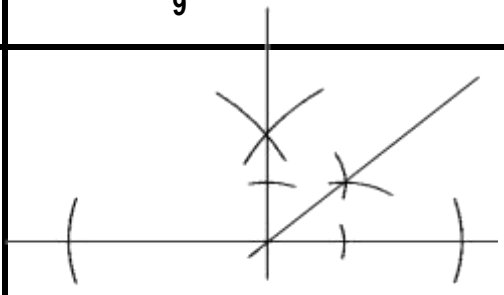
Probability= $\frac{\mathbf{5}}{\mathbf{9}}$

11.

Total fraction- shaded fraction

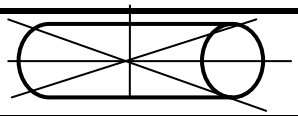
$\frac{8}{8} - \frac{3}{8} = \frac{\mathbf{5}}{\mathbf{8}}$

12.



13. Modal mark is 4

14. 2, 3, 5, 7, **11**, **13**
These are sets of prime numbers

15.  4 lines of symmetry

16. (5 x 14) + (5x 6)
= 5 (14+ 6)
5 x 20 = 100

17. 45,000
+ 5
45005

18. Ending time= 11:00a.m
Duration of lesson = 1: 30 minutes
Starting time = ?
Starting time = Ending time – duration taken
Starting time = 11: 00- 1: 30
11:00
-1: 30
9: 30am

19. Mean age of 4 girls = 4 x 15
= 60years
Total age of 3 girls = 50 years
Age of the fourth girl= 60=50
=10 years

20. Area of ¼ a circle
$A = \frac{1}{4}\pi r^2$
A= $\frac{1}{4}$ x $\frac{22}{7}$ x 7x~~7~~
A= $\frac{22x\ 7}{4}$
A= $\frac{154}{4}$ =38.5cm

Section B

21. (a)
$\frac{145}{100} \times \frac{66}{100} \div \frac{11x}{10} \frac{15}{10}$

$\frac{\cancel{145}}{100} \times \frac{66}{\cancel{100}} \times \frac{10x}{\cancel{11}} \frac{\cancel{10}}{\cancel{15}}$

$\frac{29x\ 2}{100}$
$\frac{58}{100}$ = 0.58

(b) $1\frac{2}{5} \times 1\frac{1}{2} \div 3\frac{1}{2}$
$= \frac{7}{5} \times \frac{3}{2} \div \frac{7}{2}$ using BODMAS
$= \frac{7}{5} \times \left(\frac{3}{\cancel{2}} \times \frac{\cancel{2}}{7}\right)$
$\frac{\cancel{7}}{5} \times \frac{3}{\cancel{7}}$
$= \frac{3}{5}$

22. (a)

Ten thousands	thousands	**hundreds**	tens	ones
4	5	**3**	0	1

The place value of 3 is **hundreds**

(b) $n^3 x\ n^5 \div (n^2 x n^4)$
$n^{(3+5)} \div n^{(2+4)}$
$n^8 \div n^6$
$= n^{8-6}$ $= n^2$

(c 437 using values

hundreds	tens	ones
4	3	7

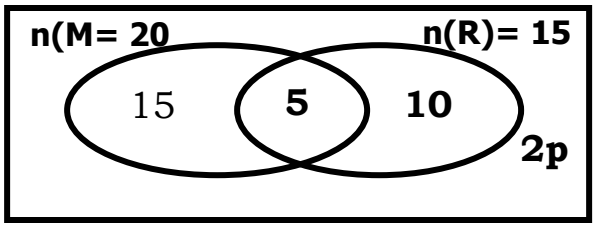
(4x 100) + 3 x 10) + (7x1)

23. ***Method 1***
(a) 180^0 (n-2) = 720
$\cancel{180}^0$ (n-2) = $\frac{720}{\cancel{180}^0}$ $\frac{}{180^0}$
n- 2 = 4
n-2+2 = 4+2
n= 6
the polygon has 6 sides

90 (2n-4) = 720
$\frac{\cancel{90}\ (2n-4)}{\cancel{90}} = \frac{720}{\cancel{90}}$
2n-4 = 8
2n-4+4 = 8+4
$\frac{2n}{2} = \frac{12}{2}$
Method II
n = 6

(b) Sum of interior angle = 720
Interior angle = $\frac{\text{sum of interior angles}}{\text{Total side of polygon}}$
$= \frac{720}{6}$
Interior angle = 120^0
Interior angle+ Exterior angle = 180^0
$120^0 + x = 180^0$
$120^0 - 120^0 + x = 180^0 - 120^0$ $x = 60^0$

24. (a) $n(\Sigma) = 40$



b) $15 + 5 + 10 + 2p = 40$

$30 + 2p = 40$

$30 - 30 + 2p = 40 - 30$

$\frac{2p}{2} = \frac{10}{2}$

25. (a) $\frac{7+9+7+4+m}{5} = 6$

$\frac{5 \times 27 + m}{5} = 6 \times 5$

$27 + m = 30$

$27 - 27 + m = 30 - 27$

$m = 3$

(b) Range = Highest – Lowest

Range = 9-3

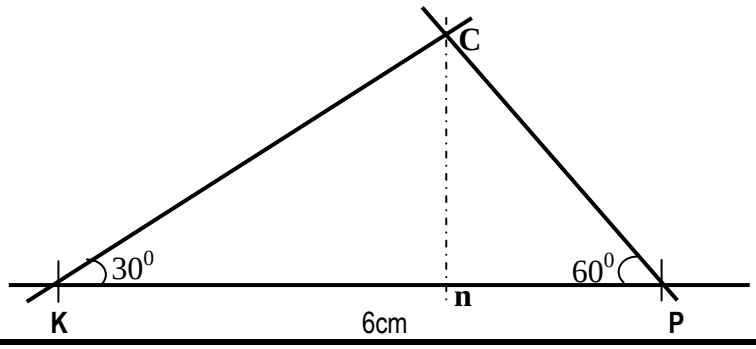
= 6

(c) Median

3, 4, 7, 7, 9

Median = 7

26.



b) 3 cm

27. (a) $5 + r = 3r - 3$

$5 + 3 = 3r - r$

$\frac{8}{2} = \frac{2r}{2}$

$r = 4mm$

(b) Perimeter of a rectangle = (L+ W) X 2

Length= 5+r

=5+4

=9mm

Width = r + 2

= 4 + 2

= 6mm

P= (9 +6) x 2 mm

P= (15x 2)mm

= 30mm

28. $\frac{3m+1}{4} = \frac{m+2}{2}$

$2(3m+1) = 4(m+2)$

$6m+3 = 4m+8$

$6m-4m = 8-2$

$\frac{2m}{2} = \frac{6}{2}$

$m = 3$

28. (b) $\frac{1}{5}m^2 = 20$

$\frac{1}{5}m^2 = 20 \times 5$

$5x$

$m^2 = 20x5$

$\sqrt{m^2} = \sqrt{100}$

$m = 10$

29. Let the first numbe be x

First No.	Second No.	Third No.	Total sum
x	X+2	X+ 4	45

X= X+2 + X+4 = 45

3X +6 =45

3X +6-6= 45- 6

$\frac{3X}{3} = \frac{39}{3}$

X = 13

(b) Square numbers between 3 and 20

1x1	2x2	3x3	4x4	5x 5
1	**4**	**9**	**16**	25

Set X = {4, 9, 16}

n(X) = 3

30.

Item	Rice	Bread	Cooking oil	Blue Band
amount and Price	2 x3,000	2x 3800	1½ litre x 2,000 $\frac{3}{2}$x 2,000	½kg x 6,000 $\frac{6,000}{2}$
Total	6,000	7,600	=3,000	=3,000

Total expenditure= 6,000+ 7,600 +3,000+ 3,000

= Shs. 19,600

b) Discount of 1,000

Payment made = Shs. 19,600- 1,000

Shs. 18,600

Change = Shs. 45,000- Shs. 18,600

=26,400

31. 1000m=1km

20m= $\frac{20}{1000}$

1 hour= 3600 seconds

$\frac{20}{1000} \div \frac{1}{3600}$

$\frac{20}{1000} \times \frac{3600}{1}$

2x 36 = **72km/ hr**

(b) 60km in 30 seconds

1km = 1000m

1hr= 60minutes

60mins = 1 hr

30 minutes= $\frac{30}{60}$

=60km/ ½ hr

= 60 x $\frac{2}{1}$

= 120km/ hr

32. Assuming John's age is y

John's age	Nakato	Total age
y	2x y	42

y+ 2xy = 42

$\frac{3y}{3} = \frac{42}{3}$

y = 14

john is 14 years old.

b) Difference in their age=

John = 14 years old

Nakato = 2 x y

= 2y

=2 x14= 28

Difference = 28 -14

= 14 years