KINGS WAY PRIMARY SCHOOLS

P.7 TOPICAL QUESTIONS

Name: .....Date: .....

TOPIC: NUMBER PATTERNS AND SEQUENCES

Section **A**

1. Find the sum of even numbers between 13 and 31

2. List down all composite numbers between 2 and 15

3. Find the GCF of 8 and 12

4. Find the least number of oranges that can be given to 6, 8 or 18 children without leaving any remainder.

5. Calculate the square root of 196.

6. The sum of 3 consecutive natural numbers is 63. List down all the numbers.

7. Find the next number in the sequence; 4, 7, 6, 9, 8, 11, …..
8. Find the LCM of 9 and 11

9. The GCF of two numbers is 2 and their LCM is 24. If one of the numbers is 8, find the second number.

10. Calculate the cube root of 125.

11. Find the square root of 0.81

12. Find the area of a square whose one side is 0.16m.

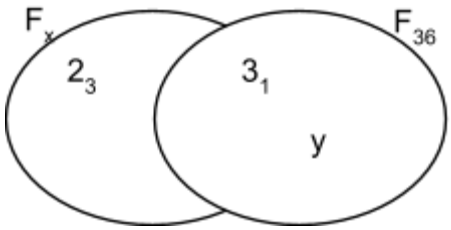
13. What number has been prime factorized to give $\{2_1, 2_2, 3_1, 5_1\}$

14. Which is the 125^{th} triangular number?

15. Prime factorize 60 and give your answer in power form.

Section B

16. Use the Venn diagram below to answer



(a) Find the value of (i) y

(i) x

(b) Calculate the'; (i) LCM of x and 36 (ii) GCF of x and 36

(c) Find the $n(F_x \text{ n } F_{36})$

17. Find the next number in the series below

(a) 2, 2, 3, 5, 8, ……

(b) $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, …….

(c) 2.2, 1.8, 1.4, 1.0, ……

18. The sum of 3 consecutive integers is 84.

(a) List down all the numbers

(b) Find their range

19. What smallest number can you place in the box to make the numbers below divisible by 3?

(a) 145 $\square$

(b) 1$\square$53

20. (a) Given that $14_{five} = 13_{n}$, find n

21. (b) Simplify $P^4 \times P^2 \div P^3$

22. (c) Solve $2^x = 8$

KINGS WAY PRIMARY SCHOOLS

P.7 TOPICAL QUESTIONS

Name: .....Date: .....

TOPIC: OPERATIONS ON NUMBERS

Section **A**

1. Workout: $5^2 + 5^3 + 5^0$

2. What number must be added to 54068 to give 60,000?

3. Workout: using distributive property
   (a) $(2.5 \times 13) + (2.5 \times 7)$

   (b) $(79 \div 8) - (7 \div 8)$

4. Add: 250178 + 16 + 4007

5. Workout: 53:09 – 18.5 + 2.36

6. Find the product of 5263 and 120

7. Simplify: $7^6 \div 7^2$

8. Write 17,690,000 in scientific notation

9. Nyamaizi multiplied two numbers and wrote his answer as 6.25×10^6. Write this answer in full

10. Find the square root of $1\frac{7}{9}$

11. How many groups of 27 are in 1026?

12. Simplify: $\frac{(4.9)^2}{24.5\times0.7}$

13. Add: 3hours 46minutes to 2hours 25minutes

14. A cigarette company packs 29 sticks in a packet, 12 packets in a carton and 8 in a box. How many sticks of cigarettes are in 135 boxes?

15. A man was born in MCMV and died in MCMLXXXIV. How old was he at the time of his death?

16. (a) Write the following in Roman numerals
    (i) 1204

    (ii) 1509

    (b) Write in Hindu Arabic numerals
    (i) MCMIX

    (ii) CXXXVIII

17. The reading of an electric metre at the beginning of the month was 0546754 and at the end of the month was 0549837.
    (a) How many units were used in the month?

    (b) If a unit of electricity is shs.857, how much money was paid in that month?

18. (a) Find the value of x.
X – 5 = 4 (finite 7)

(c) A boy waited for a train from 8:45am to 3:45pm. For how long did he wait?

(d) It is October now. What month of the year will it be after 200 months from now?

19. Houses in Jinja town are numbered starting with 1, 2, 3, 4, 5, 6, 7, 8, 9. A person is paid fifty shillings for each digit painted on the house.

(a) If Peter painted 125 houses, how much money did he earn?

(b) When James worked on main street he earned shs.9500, how many houses did James paint?

20. A crate of soda was given to 7 boys.

(a) If the boys shared the bottles equally how many bottles did each boy get?

(b) How many bottles remained?

KINGS WAY PRIMARY SCHOOLS

P.7 TOPICAL QUESTIONS

Name: .....Date: .....

Whole numbers

Section A

1. Write in words 36,001

2. What is the value of 4 in the number 8421?

3. Expand 3649 using powers of ten

4. Express 454 inRoman numerals

5. Find the product of the values of 2 and 4 in the number 825:45

6. Write in figures: Twenty five thousand four

7. Express 16_{ten} as binary base system

8. Find x given that $3^{2x} = 81$

9. Write in Hindu Arabic numerals MCMXCV

10. Add 15_{ten} to 31_{ten} giving your answer in base two

11. What number has been expanded to give; $(2 \times 10) + (6 \times 1) + (3 \times {}^{1}/_{10}) + (4 \times {}^{1}/_{100})$

12. Given digits 0, 7, 9, 6 form the biggest four digit numeral from the given digits

13. Change 1101_{two} to base ten

14. Express ¾ as a decimal fraction

15. What is the place value of 5 in the number 65001?

16. Given digits 3, 1, 5, 9
    (a) Form the biggest and smallest four-digit numeral from the above digits.
        i) Biggest

        ii) Smallest

    (b) Write the smallest number formed in Roman numerals

    (c) Calculate the difference between the biggest and smallest four digit numerals formed.

17. (a) Write 2400 in standard form.

    (b) Expand 0.064 using place values

18. Round off 0.998 to two decimal places.

19. (d) Find the sum of the value of 6 and the place values of 3 in the number 46,438

20. (a) Simplify: 2 – 4 = …… (finite 5)

(b) Today is Tuesday. Find the day of the week after 19days.

(c) Subtract: 1101_{two} from 110_{two}

(d) Solve $3x - 4 = 3$ (finite 5)

21. (a) Solve the unknown bases

i) $44_x = 35_{nine}$

ii) $24_n = 28_{six}$

22. (b) Express the following as common fractions in their lowest terms

i) 0.777…

ii) 0.2727…

23. What number has been expanded? $(3 \times 10^3) + (9 \times 10^1) + (6 \times 10^{-1}) + (4 \times 10^{-2})$

KINGS WAY PRIMARY SCHOOLS

P.7 TOPICAL QUESTIONS

Name: .....Date: .....

TOPIC: SET CONCEPTS

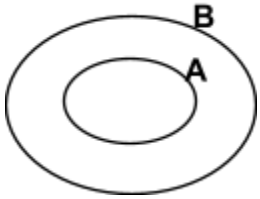
1. Given that set P = {1, 2, 3, 4, 5, 6, 7} and K = {0, 2, 4, 8, 9, 10} find

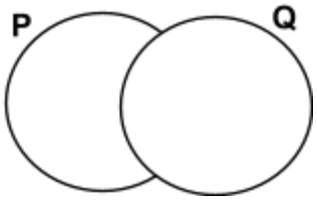
(a) PnK

(b) P – K

2. Given that set A = {polygons}, b = {quadrilaterals} and C = (parallelograms} draw a Venn diagram to show the relationship between the three sets

3. Describe the shaded regions



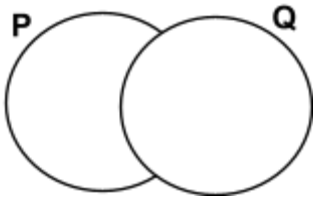


4. Given that a set has 32 subsets, how many elements are in this set?

5. Given that set K = {a, b, c}. How many proper subsets are in set K?

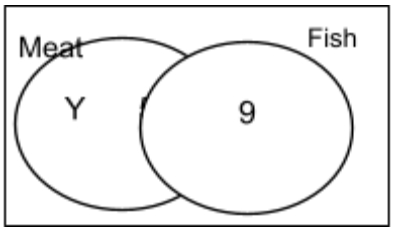
6. Given that set P = {1, 2, 3, 4, 5, 6}, W = {-2, ≤ x ≤ 2} represent the two sets on a Venn diagram

7. Shade P – Q in a Venn diagram

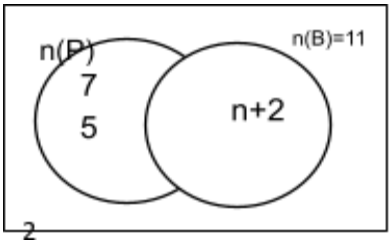


8. Set T = {75, 70, 65, 60, 55, 50, 45}. Describe T.

9. In a class of 29pupils 9 eat fish only, 5 eat both meat and fish and y pupils eat meat only. Use the Venn diagram below to find the value of y



10. Use the Venn diagram below to find the value of n



11. Given that n(A) = 15, n(B) = 20 and n(AnB) = 9

(a) Draw a Venn diagram to show the above information

(b) Find (i) n(AuB) (ii) n(A – B)

12. In a class of 20 pupils, 14 speak Luganda (L), 15 speak Kiswahili (K) and some speak both languages.

(a) Draw a Venn diagram to show the above information

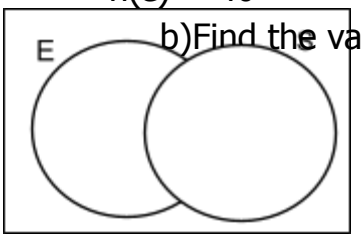
(b) Find the number of pupils who speak both Luganda and Kiswahili

(c) How many pupils speak only one language?

13. In a class of 40 pupils, 25 like English €, 15 like science (S), 4 like both and 8 pupils do not like any of the two subjects

(a) Complete the Venn diagram below

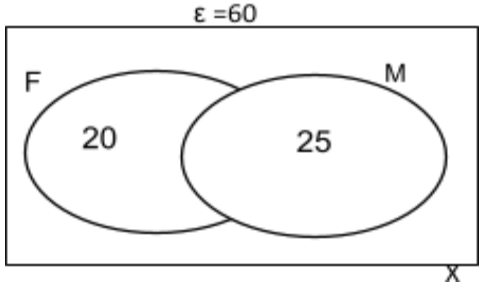
n(ε) = 40



b)Find the value of y

c). What is the probability of selecting a pupil who likes only science?

14. The Venn diagram below shows 60 people who like either fish or meat.



(a) Find the value of x

(b) What is the probability of choosing a pupil who likes fish?

GUIDE 1

1. 17, 19, 23, 29
   17 + 19 + 23 + 29
   = (17 + 19) + (19 + 29) = 88
2. 4, 6, 8, 9, 10, 12, 14
3. F_8 = {1, 2, 4, 8}
   F_{12} = {1, 2, 3, 4, 6, 12} GCF = 4
4.

2	6	8	18
2	3	4	9
2	3	2	9
3	3	1	9
3	1	1	3
	1	1	1

   2 x 2 x 2 x 3 x 3= 72
5. $\sqrt{196}$

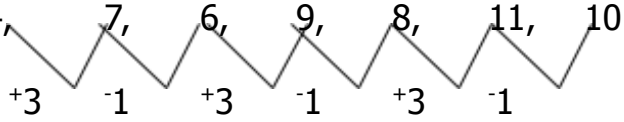
2	196
2	98
7	49
7	7

   2 x 7 = 14
6. X, X + 1, x + 2
   X + x + 1 + x + 2 = 63
   3x + 3 = 63
   3x + 3 – 3 = 63 – 3

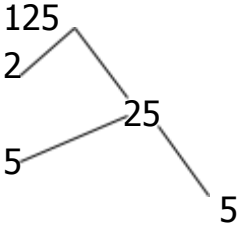
$\frac{3x}{3} = \frac{60}{3}$

No. 20, 21, 22

7. 4, 7, 6, 9, 8, 11, 10



8. 3 x 3 x 11 = 99
9. $\frac{24 \times 2}{8} = 6.$
10. 125

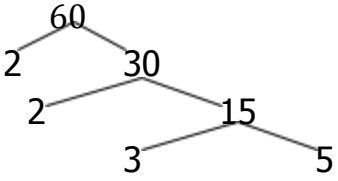


$\sqrt[3]{125} = 5$

11. $\sqrt{0.81} = \frac{\sqrt{81}}{\sqrt{100}} = \frac{9}{10} = 0.9$
12. A = S x S

    0.16 x 0.16

    $= \frac{16}{100} \times \frac{16}{100} = \frac{256}{10000} = 0.0256$
13. 2 x 2 x 3 x 5 = 60
14. $\frac{n(n+1)}{2} = \frac{125(125+1)}{2} = 125 \times \frac{126}{2} = 125 \times 63 = 7875$
15. 60



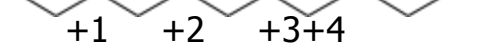
16. Section B
17. (a) (i) X = 2 x 2 x 3 x 2 = 24

    (ii) y x 2 x 2 x 3 = 36

    (b) (i) LCM = 2 x 2 x 2 x 3 x 3= 72

    (ii) GCF = 2 x 2 x 3 = 12

    (c) $n(F_x n F_{36}) = 3$
18. (a) 2 2 3 5 8 12



    +0 +1 +2 +3+4

    (b) $\frac{1}{2}, \frac{5}{8}, \frac{3}{4}, \frac{7}{8}, \frac{8}{8}$

$+\frac{1}{8}$ $+\frac{1}{8}$

(c)2.2, 1.8, 1.4, 1.0, 0.6

-0.4 -0.4 -0.4 -0.4

19. (a) x, 1 + 1 , x + 2

X + x + 1 + x + 2 = 84

3x + 3 – 3 = 84 – 3

$\frac{3x}{3} = \frac{81}{3} = 27$

(b) Range: H – L = 29 – 27 = 2

20. (a) 2

(b) 1

21. (a) $14_{five} = 13_n$

$(1 \times 5^1) + (4 \times 5^0) = (1 \times n) + (3 \times n^0)$

5 + 4 = n + 3

9 – 3 = n + 3 – 3 = 6

22. (b) $P^4 \times P^2 \div P^3 = \frac{P \times P \times P \times P \times P \times P}{P \times P \times P} = P^3$

23. (c) $2^x = 8$

$2^x = 2^3$

X = 3

2	8
2	4
2	2

GUIDE 2

1. 5 x 5 + 5 x 5 x 5 + 1

= 25 + 125 + 1 = 151

2. 60,000

-54068

5932

3. (a) 2.5 x (13 +7) = 2.5 x 20 = $\frac{25}{10} \times 20 = 25 \times 2 = 50$

(b) (79 – 7) ÷ 8 = 72 ÷ 8 = 9

4. 250178 = 250194

+ 16 +4007

250194 254201

5. 5263 x 120 = 631,560
6. 53.09 55.45
   +2.36 – 18.5
   55.45 36.95
7. $7^{6-2} = 7^4$
8. 1.769 x 10^7
9. 6.25 x 10 x 10 x 10 x 10 x 10 x 10 x 10

$\frac{625}{100} \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 = 6250000$

10. $\sqrt{1\frac{7}{9}} = \frac{\sqrt{16}}{\sqrt{9}} = \frac{4}{3} = 1\frac{1}{3}$
11. $1026 \div 27 = \frac{1026}{27} \div \frac{3}{3} = \frac{342}{9} \div \frac{3}{3} = \frac{114}{3} = 28 groups$
12. $\frac{49}{10} \times \frac{49}{10} \div \left(\frac{245}{10} \times \frac{7}{10}\right) = \frac{49}{10} \times \frac{49}{10} \times \frac{10}{245} \times \frac{10}{7} = \frac{7}{5} = 1.4$
13. Hrs Mins
    3 46
    +2 25
    6hrs 11mins
14. A packet = 20 sticks
    A carton = 12 packets
    (12 x 20) = 240 sticks
    8 cartons make a box
    1box = 8cartons
    (12 x 8) packets = 96packets that is to say 96 x 20 = 1920sticks
15. (a) MCMV = 1905 and MCMLXXXIV = 1984 that means 1984 – 1905 = 79yrs
    (b) MCMIX = 1909 (ii) CXXXVIII = 138
16. (a) 0549837 – 0546754 = 3084units
    (b) 857 x 3084 = 2642988/=
17. (a) x – 5 + 5 = 4 + 5 (fin 7)=$\frac{9}{7} = 1r2(finite\ 7) = 2$
    (b) 12:00 – 8:45 = 3:15, 3:15 + 3:45 = 7:00 there equals 7hours
    (c) 10 + 200 = (fin 12) = $\frac{210}{12}$

GUIDE 3

1. Thirty six thousand one

2. 8421

   Hundreds

   4 x 100 = 400

3. | 3 | 6 | 4 | 9 | $(3 \times 10^3) + (6 \times 10^2) + (4 \times 10^1) + (9 \times 10^0)$
4. | 10^3 | 10^2 | 10^1 | 10^0 |
5. 454 = 400 + 50 + 4 = CD + L + IV = CDLIV
6. 825.45 = (2 x 10) (4 x 0.1) = 20 x 0.4 = 20 x 4/10 = 8
7. 25,004
8.

2	16	r
2	8	0
2	4	0
2	2	0
	1	0

   10000_{two}

9. $3^{2x} = 81$

   $3^{2x}\ 3^4$

$\frac{2x}{2} = \frac{4}{2} = 2$

10. MCMXCV = 1995
11. 15

    +31

    46_{ten}

2	46	r
2	23	0
2	11	1
2	5	1
2	2	1
	1	0

    101110_{two}

12. 20 + 6 + 0.3 + 0.04 = 26 + 0.34 = 26.34
13. 9760

14. ¾ = 0.75

    $4\overline{)30}$

    28

    20

    20 = 0.75

15. $1101_{two} = (1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) = 8 + 4 + 0 + 1 = 13_{ten}$
16. 65001 five has a value of thousands

17. (a) 9531 (ii) 1359
    (b) 1359 = MCCCLIX
    (c) 9531 - 1359 = 8172
18. (a) 2.4×10^3
    (b) (0 x 1) + (0 x 0.01) + (6 x 0.01) + (4 x 0.001)
    (c) 0.998 + 1 = 1.00
19. (d) 46438
    Value of 6 = 6000 6000
    Place value of 3 = tens +10
    6010
20. (a) 2 – 4 = ……(fin 5) = (2 + 5) – 4 = 7 – 4 = 3(finite 5)
    (b) Tuesday = 2 = 2 + 19 = (fin 7) $\frac{21}{7} = 3r\ 0$
    0 stands for Sunday
    (c) 1101_{two}
    -110_{two}
    111_{two}
    (d) 3x – 4 + 4 = 3 + 4 (fin 5)
    3x = 7 (fin 5)
    3x = (7 + 5) (fin 5) = $\frac{3x}{3} = \frac{12}{3} = 4(fin5)$
21. (a) $44_x = 35_{nine}$
    $(4 \times X^1) + (4 \times X^0) = (3 \times 9^1) + (5 \times 9^0) = 4x + 4 = 27 + 5 = 4x + 4 = 32$
    $4x + 4 – 4 = 32 – 4 = \frac{4x}{4} = \frac{28}{4} = 7$
22. (ii) $24_n = 28_{six} = (2 \times n^1) + (4 \times n^0) = (2 \times 6^1) + (8 \times 6^0)$
    2n + 4 = 12 + 8
    2n + 4 = 20
    2n + 4 – 4 = 20 – 4 = $\frac{2n}{2} = \frac{16}{2} = 8$

23. (b) X = 0.777…….(i)
    10x = 7.777…. (ii)
    10x = 7.777

- X = 0.777

9x = 7 = $\frac{9x}{9} = \frac{7}{9} = \frac{7}{3}$

24. (ii) 0.2727……

Y = 0.2727…….(i)

100y = 27.2727……..(ii)

100y = 27.2727

- Y = 0.2727

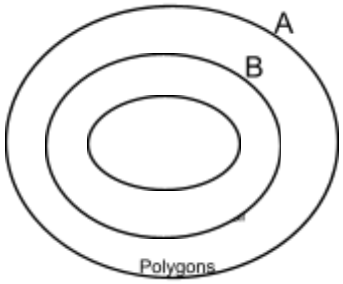
99y = 27

$\frac{99y}{99} = \frac{27}{99} = \frac{3}{11}$

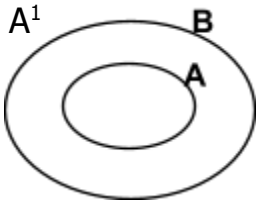
25. 3000 + 90 + 0.6 + 0.04 = 3090.64

GUIDE 4

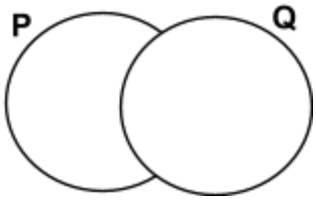
1. (i) PnK = {2, 4}
   (ii) P – K = { 1, 3, 5, 6, 7}
2. Diagram



3. (i) A^1



4. (ii) $(PnQ)^1$

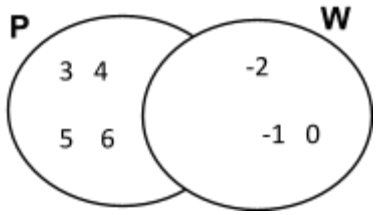


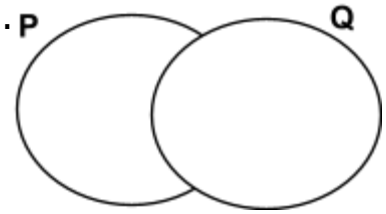
5. $2^n = 32$
   $2_n = 2^5$
   5elements

2	32
2	16
2	8
2	4
2	2
	1

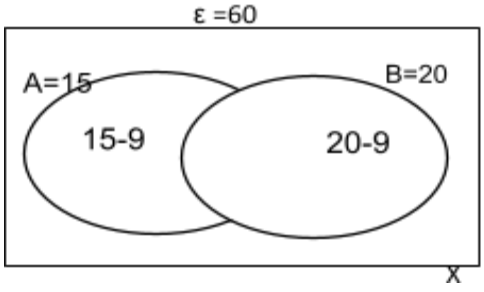
6. $2^n = 2^3$
   (2 x 2 x 2) – 1
   8 – 1 = 7 proper subsets

7. P = {1, 2, 3, 4, 5, 6} and W = {-2, -1, 0, 1, 2}

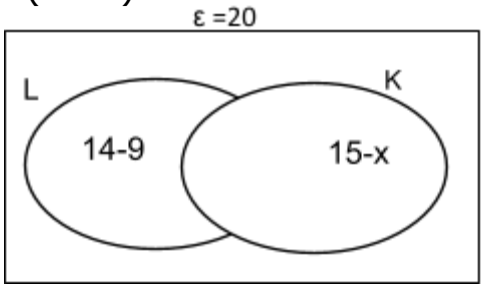


8. 

9. Set T = {multiples of 5 from 45 to 75}
10. Y + 5 + 9 = 29
    Y + 14 – 14 = 29 – 14
    n = 15
11. 5 + n + 2 = 11
    n + 5 + 2 = 11
    n + 7 – 7 = 11 – 7
    n = 4

12. (a) 

    (b) (i) n(AuB) = (15 – 9) + 9 + (20 – 9) = 6 + 9 + 11 = 26
    (ii) n(A – B) = 6

13. (a) 

(b) $14 - x + x + 15 - x = 20$

$14 + 15 - x = 20$

$29 - x = 20$

$29 - 20 - x + x = x$

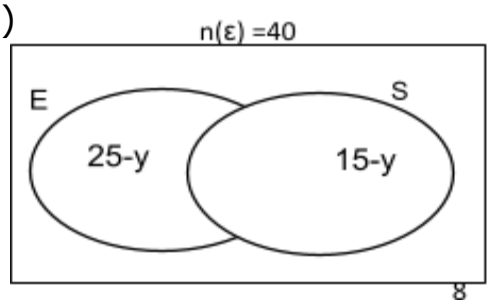
$9 = x$

(c) $(14 - x) + (15 - x)$

$(14 - 9) + (15 - 9)$

$5 + 6 = 11$ pupils

14. (a)



(b) $8 + 25 - y + y + 15 - y = 40$

$33 + 15 - y = 40$

$48 - y = 40$

$48 - 40 = y$

$8 = y$

(c) $(15 - 8) = 7$

15. (a) (i) M = {a, b, c, e, f, g, h}

(ii) PnN = {a, e, d}

(iii) P^1 = {b, c, f, h, t, g}

(iv) PnMnN = {a, e}

(v) n(MnN) only = 2

16. (a) $X + 20 + 10 + 25 = 60$

$X + 55 = 60$

$X + 55 - 55 = 60 - 55$

$X = 5$

(b) $20 + 10 = 30$

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

B Parallelogram

Quadrilateral

Polygons