



# JAFFNA HINDU COLLEGE

Risk Holiday Self - Education Worksheet - 2020

Grade - 08 | Mathematics

Name/Index No : .....

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## Part - 1

01) Write the next two term of the following.

- I. 2, 5, 8, 11, ..... ..
- II. 27, 22, 17, ..... ..
- III. 4, 8, 12, 16, ..... ..
- IV. 1, 3, 6, 10, ..... ..

02) Find the general term of the following sequences.

- I. 3, 6, 9, 12, 15, ..... ..
- II. 2, 4, 6, 8, ..... ..
- III. 1, 3, 5, 7, ..... ..
- IV. 1, 4, 9, 16, ..... ..

03) The general term of a few number sequences are given below. Write the first five terms of each sequences.

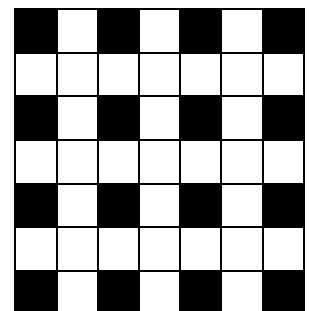
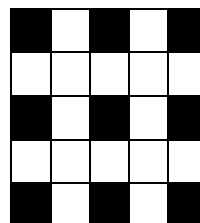
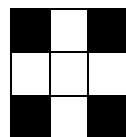
- I.  $2n+1$
- II.  $20-3n$
- III.  $6n$
- IV.  $4n-4$

04)

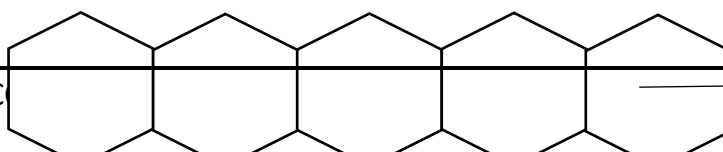
- I. In the sequences 2,4,6,8..... which term is 156?
- II. Find the 18<sup>th</sup> term of the sequence 1,3,5,7...
- III. What is the even number larger then 100 but closest to 100?
- IV. Which square number 225?

05)

- I. Find the sum of first 20 odd number of the number pattern starting form 1 and written in ascending order.
- II. Write the number of unshaded squares in each of the figure. How many unshaded fringles should be there in 7<sup>th</sup> figure.



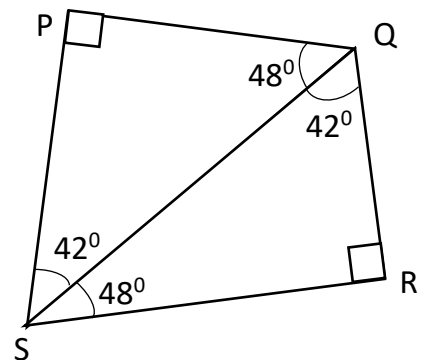
06)



The figure shows a plan of a footpath made by using 17 congruent regular hexagonal cement block. If the perimeter of hexagon is 144cm. Find the perimeter of the path in meters.

- 07) The length of a rectangular volleyball court is twice its breadth.
- I. If the breadth is  $X$ , What is the length.
  - II. Find an expression in terms of  $X$  for the perimeter of the court.
  - III. If the perimeter of the court is 60m, find the value of  $X$  and write down the length and breadth of the volleyball court.

- 08)
- I. Write the complement of  $63^\circ$
  - II. Find the supplement of  $X^\circ$
  - III. Name 4 Pairs of complementary angles and 2 Pairs of supplementary angles in the figure.



- 09) Find the value of the following using number line
- I.  $(+2) + (-6)$
  - II.  $(-3) - (+2)$
  - III.  $(-3) + (+5)$
  - IV.  $(+7) - (+3)$

10) Select those pairs whose the difference is  $(-3)$

- |                  |                   |                    |                     |
|------------------|-------------------|--------------------|---------------------|
| i) $(+1) - (+4)$ | ii) $(-1) - (-2)$ | iii) $(-2) - (+1)$ | iv) $(-7) - (-4)$   |
| v) $(+2) - (-4)$ | vi) $0 - (+3)$    | vii) $(-3) - 0$    | viii) $(-5) - (+2)$ |

11) Simplify

- |                             |                             |
|-----------------------------|-----------------------------|
| i) $2x + 3x + x$            | ii) $5x + 2y + x - y$       |
| iii) $3ab + 2ab - 3xy + xy$ | iv) $3p + 2q + 2p + q - 3p$ |

12) Find the value of each of the following

- |   |   |
|---|---|
| i) $\sqrt{(2 \times 5)^2}$              | ii) $\sqrt{2^2 \times 3^2}$                                 |
| iii) $\sqrt{3^2 \times a^2 \times b^2}$ | iv) $\sqrt{3 \times 3 \times 5 \times 5 \times 5 \times 5}$ |

13) Find the value of the following using the knowledge of product of prime factors.

i)  $\sqrt{256}$       ii)  $\sqrt{729}$       iii)  $\sqrt{676}$       iv)  $\sqrt{900}$

14) Find the HCF of each set of numbers given below.

i) 12, 18      ii) 12, 24, 36  
iii) 24, 36, 48      iv) 15, 20, 30

15) Find the HCF of the algebraic terms in each part given below.

i)  $pq, 5pq, 10q$       ii)  $2p, 8p, 12q$   
iii)  $6xy, 12xyz, 18xz$       iv)  $2pq, p^2q, 6q^2$

16) Fill in the blanks.

i)  $2a + 6 = \_ (a + \_)$       ii)  $3a - \_ + ab = a(\_ - a + \_)$   
iii)  $a^2 - ab - \_ = \_ (a - \_ - 1)$       iv)  $12a - 18b + 6 = \_ (\_ - \_ + \_)$

17) There are 24 boys and 20 girls in a class. They should be grouped so that there are equal number of boys and equal number of girls in all the groups.

- I. What is the highest number of groups that can be made.
- II. How many girls and how many boys will be there in each group.

18)

- I. Name four platonic solids.
- II. What is the shape of a face of a regular dodecahedron.
- III. How many edges are there in a regular dodecahedron.
- IV. Write the Euler's relation.

19) If the following statements are true put “ ” and if they are wrong put “X” in the given boxes.

- I. The value of  $(-2)^{1001}$  and  $2^{1001}$  should be equal. ( )
- II. If  $X^{11} = (-1)$  then X should be equal to  $(-1)$  ( )
- III. Any power of  $(-1)$  gets the value  $(-1)$ . ( )
- IV. The odd powers of negative numbers give negative values ( )

20)

- I. A lorry was loaded with 8t of rice. 5t 250 kg of rice was distributed to the retail shops. Find the amount of rice remaining.
- II. In an aeroplane of 3t 800kg the mass of passengers is 5t 600kg and the mass of baggage is 2t 900kg. Find the total mass of the plane.

## Part - II

01) In the Number pattern 1,3,5,7,.....

- I. Write the next two terms.
- II. Complete the table to obtain the general term of the number pattern.

Term	multiples of 2	multiples of 2-1	Number
1 <sup>st</sup> Term	2x1	2x1-1	1
2 <sup>nd</sup> Term	2x2	2x2-1	3
3 <sup>rd</sup> Term	2x3	2x3-1	5
4 <sup>th</sup> Term	2x4	_____	_____
n <sup>th</sup> Term	2x__	_____	_____

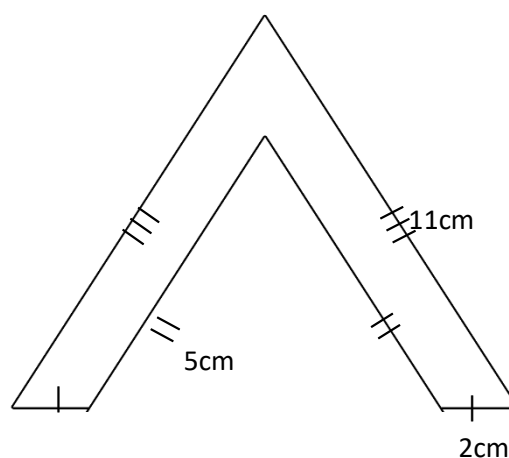
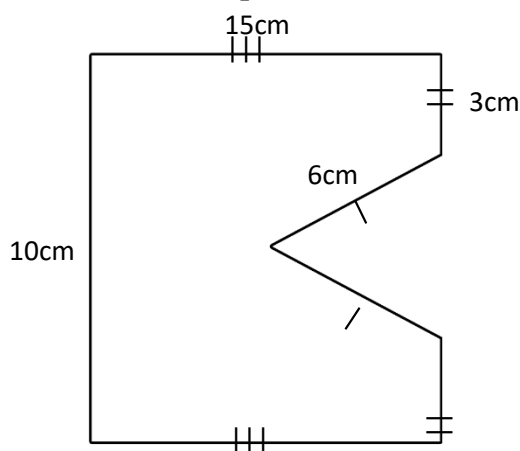
- III. Which term is 45?
- IV. When we add the first term, first two term, first three terms.....and so on. we can get another number pattern. Write down that number pattern.
- V. Write the general term of that number pattern.

02)

- I. What is the 20<sup>th</sup> square number?
- II. What is the 19<sup>th</sup> triangular number?
- III. What is the 20<sup>th</sup> triangular number?
- IV. What is the sum of the 19<sup>th</sup> and 20<sup>th</sup> triangular numbers?
- V. What is the relationship between the answer obtained (i) and (iv)?

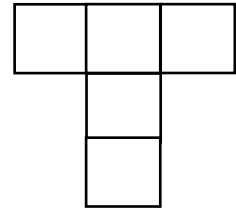
03)

- I. Calculate the perimeter of the following figures.



- II. An equilateral triangle is drawn on one side of a square. The perimeter of the whole diagram is 60 cm. Find the Length of the side of the square.

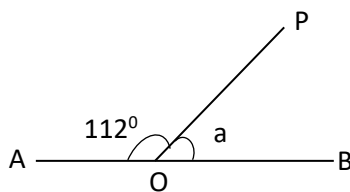
- III. A figure of the shape given below is obtained by connecting five squares which are congruent to each other. Taking the length of a side of each square as  $X$ .
- Write the perimeter of the composite figure in terms of  $X$ .
  - Calculate the perimeter of one square, if the perimeter of the composite figure is  $90\text{cm}$ .



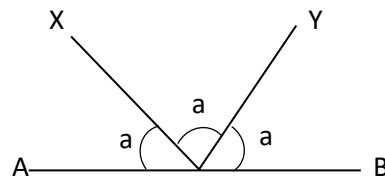
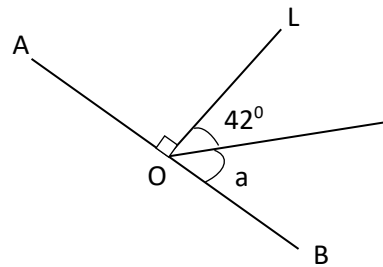
04)

- I. In each of the following figures.  $AB$  is straight line. Find the value of  $a$ .

(i)



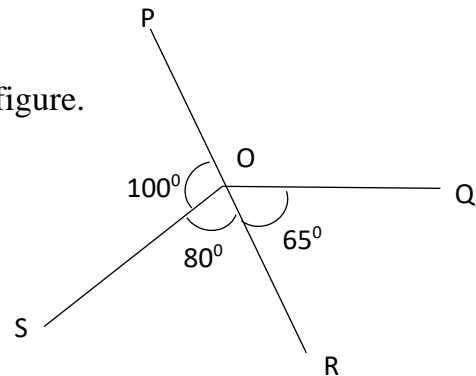
(ii)



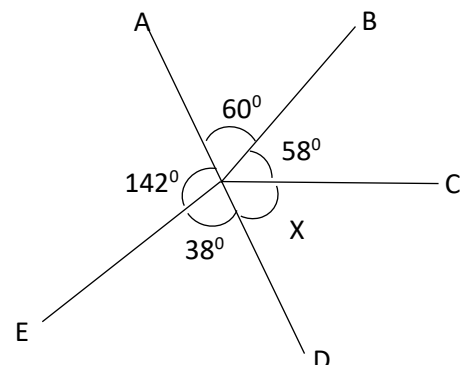
(iii)

II.

- Name a pair of adjacent angles in the figure.
- Find the value of  $\text{POQ}$ .



- III. According to the data given in the figure,
- Name a straight line and give reasons.
  - Find the value of  $X$ .



05)

I. Simplify

- a)  $(-3) + (+5)$
- b)  $(-3) \times (+2) \times (-1)$
- c)  $(-1) \times (-2) + (-3) \times (-1)$
- d)  $(-12) \div (+4)$
- e)  $\frac{(-3) \times (-4)}{(+2)}$
- f)  $\frac{(+9) \times (-8)}{(-4) \times (+3)}$

II. Fill in the Blanks.

- a) .....  $\times -3 = 3$
- b)  $(-2) \times (-2) \times \underline{\quad} = (-8)$
- c)  $\frac{-24}{\underline{\quad}} = 4$
- d)  $\frac{\underline{\quad}}{(-12)} = 6$
- e)  $\frac{(-40)}{(+8) \times \underline{\quad}} = (-1)$
- f)  $\frac{\underline{\quad} \times (-7)}{(-2) \times \underline{\quad}} = \frac{(-28)}{\underline{\quad}} = (+7)$

III. simplify.

- a)  $(-3.5) + (+5.2)$
- b)  $(+5.1) + (3.24) + (-0.7)$
- c)  $(-4.2) - (-4.2)$
- d)  $(-4) + (-7 \frac{1}{2})$
- e)  $\frac{1}{5} - \left(-\frac{4}{5}\right)$
- f)  $5 - \left(-\frac{1}{2}\right) - \left(+3 \frac{1}{2}\right)$

06)

I. Fill in the blanks.

Solid	Numbers of vertices (V)	Number of Faces (F)	Number of edges (E)	V+F	Is Euler's relationship satisfied.
Cube					
Regular Tetrahedron					
Regular Octahedron					
Regular Dodecahedron					
Regular Icosahedron					
Cuboid					
Square pyramid					

II. In a pyramid with a pentagonal base.

- How many edges are there?
- How many faces are there?
- How many vertices are there?
- Show that this solid agrees with the Euler's relation.

III. Remove the brackets and simplify.

- $2(x+1)+1$
- $3x(a+x)+2(a-x)$
- $5(2x+y)+2(x+y)$
- $4(p+2q+r)+2(p+q)$

IV. Considering  $a=2$ ,  $b=-1$ ,  $c=3$ . Find the values of the following expressions.

- $a^2 + bc$
- $a+b-c$
- $(a+b+c)^2$
- $2a+3b-c$

V. The cost of a book is Rs.  $2x$  and the cost of an umbrella is Rs  $3y$ .

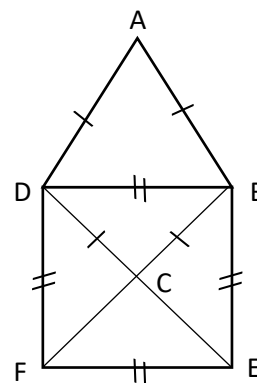
- Write an algebraic expression for the total cost of a book and of an umbrella.
- Five parcels, each containing a book and umbrella are bought for the pupils to be given as prizes. Write an algebraic expression with brackets for the total cost of these five parcels.
- Show the above expression in (ii) as an expression without brackets.

VI. Factorize

- a)  $2x + 4y + 6$
- b)  $x^3 + x^2 + x$
- c)  $a^2b - a^2c - a^2d^2$
- d)  $6-15p+9q$
- e)  $ap^2 - ap - a$
- f)  $20x^2 - 12xy + 18xy^2$

VII. The area of the square ABCD in the figure is  $200\text{cm}^2$

- a) What is the area of  $\triangle BCD$ ?
- b) What is the area of the square BEFD ?
- c) What is the Length of one side of the square BEFD?



07)

- I. Show that  $(xy)^4 = x^4xy^4$
- II. Show that  $(\frac{a}{b})^5 = \frac{a^5}{b^5}$
- III. Write each expression given below as a product of powers.
  - a)  $(2x5)^4$
  - b)  $(2x3x5)^2$
  - c)  $(7m)^3$
  - d)  $(2ab)^2$
- IV. Write each expressions given below as powers of product.
 

a) $5^2 \times 3^2$	b) $3^3 \times 4^3$	c) $p^2 \times q^2$
d) $a^5 \times b^5 \times c^5$	e) $64a^3$	f) $49m^2$
- V. Find the value.
 

a) $(-1)^{2020}$	b) $(-4)^3$	c) $(-2020)^1$
d) $1^{2019}$	e) $(-3)^5$	

08)

- I. Convert the following massers to Kiligrams (kg)
 

a. 5t	b. 0.8t	c. 6.07t
d. 2t 270kg	e. 202t 10kg	
- II. Convert the following messes to metrictrons (t)
 

a) 2000kg	b) 700kg	c) 11501kg
d) 2t 800kg	e) 9005kg	



III. Do the following multiplications.

a)  $20t \times 5 =$

b. 

t	kg
52	50
	x4

c. 

t	kg
3	20
	x4

d.

t	kg
24	710
	x7

e.

t	kg
12	225
	x4

IV. Do the following divisions.

a)  $306t \div 5$

b)  $25t \ 800kgn \div 5$

V. 14 concrete beams each 20t are fixed between two posts in constructing a fly over. Find the total mass the two posts bear.

VI. 400 bags of rice each of 50kg are loaded in a lorry of mass 3t 400kg. can this vehicle travel safely over a bridge which can bear the weight upto 20t givn reason.

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