



# JAFFNA HINDU COLLEGE

## Risk Holiday Self - Education Worksheet - 2020

Grade - 09 | Mathematics

Name/Index No : .....

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### Worksheet – I

1. Remove the brackets and simplify.

- I.  $(-3q)(2p+5-3y)$
- II.  $(-2x)(7-4y+3x)$
- III.  $-3a(5-7b)+5(a-2)$
- IV.  $-3(x-y)-2(2x-y)$
- V.  $-2(m+n)+3(2n-m)$

2. Simplify

- |                   |                     |
|-------------------|---------------------|
| I. $(m-3)(m-1)$   | VI. $(x-7)(3-x)$    |
| II. $(3-x)(5+x)$  | VII. $(2x+3)(x+4)$  |
| III. $(6-x)(x-3)$ | VIII. $(2x-1)(x+2)$ |
| IV. $(-y+3)(y+5)$ | IX. $(2x-1)(x+2)$   |
| V. $(3-x)(3+x)$   | X. $(3x-2)(x-5)$    |

3. Factorize.

- |                      |                      |
|----------------------|----------------------|
| I. $a^2+3a-3-a$      | VI. $b^2+3b-108$     |
| II. $2x^2+xy-2ax-ay$ | VII. $n^2-n-72$      |
| III. $y^2+11y+28$    | VIII. $20-9x-x^2$    |
| IV. $2m^2+26m+24$    | IX. $12p-3p^3$       |
| V. $m^2-13m+12$      | X. $2-\frac{8}{x^2}$ |

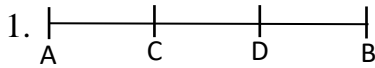
4. If  $x=(-1/3)$  and  $y=-2$  find the values of following.

- |             |                        |
|-------------|------------------------|
| I. $2x+y$   | II. $6xy-3$            |
| III. $ax-y$ | iv. $-\frac{5x}{3}+2y$ |

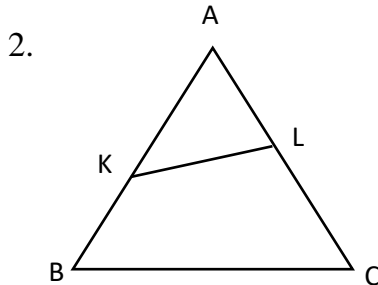
5. Find the values using your knowledge in factors.

- I.  $103^2-3^2$
- II.  $237 \times 25 - 37 \times 25$
- III.  $87.8^2 - 12.2^2$
- IV.  $22/7 \times 16^2 - 22/7 \times 9^2$

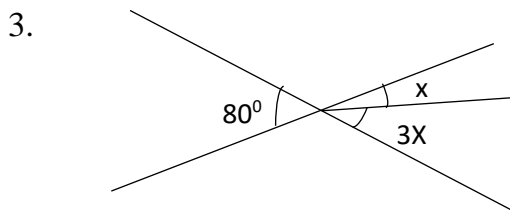
## Worksheet – II



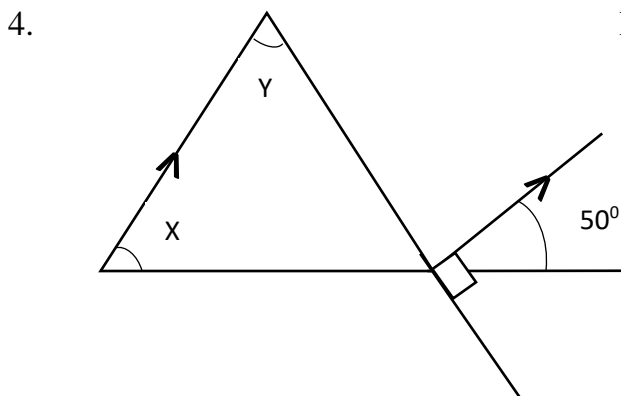
If this diagram  $AD=2AC$ ,  $CD=8D$ .  $AD=4\text{CM}$  Find the Length of  $BD$ .



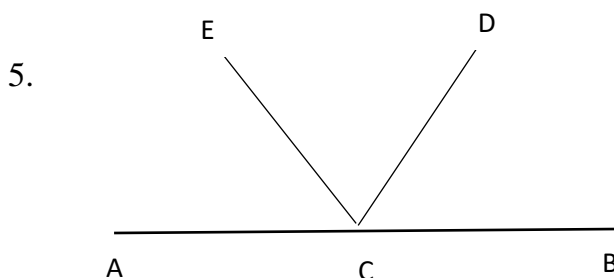
If  $\widehat{AKL} = \widehat{ACB} = 60^\circ$  and  $\widehat{BAC} = 70^\circ$   
show that  $\widehat{ALK} = \widehat{ABC}$ .



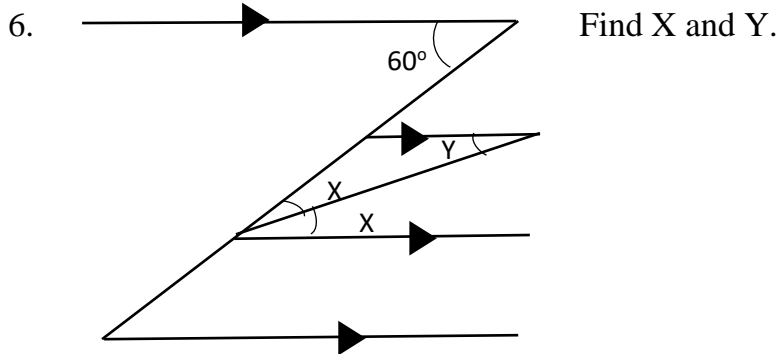
Find the magnitude of  $X$ ?



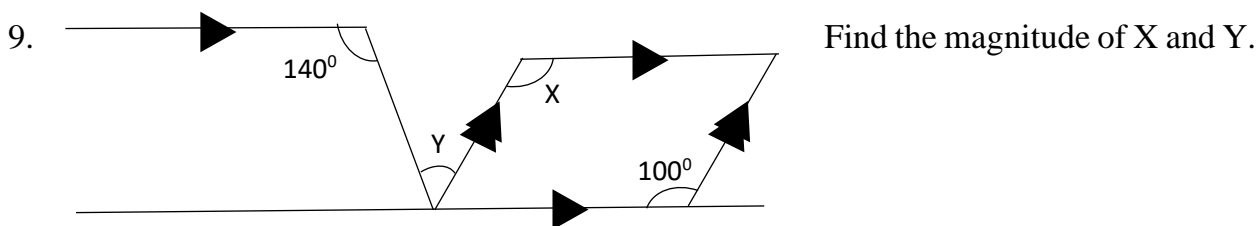
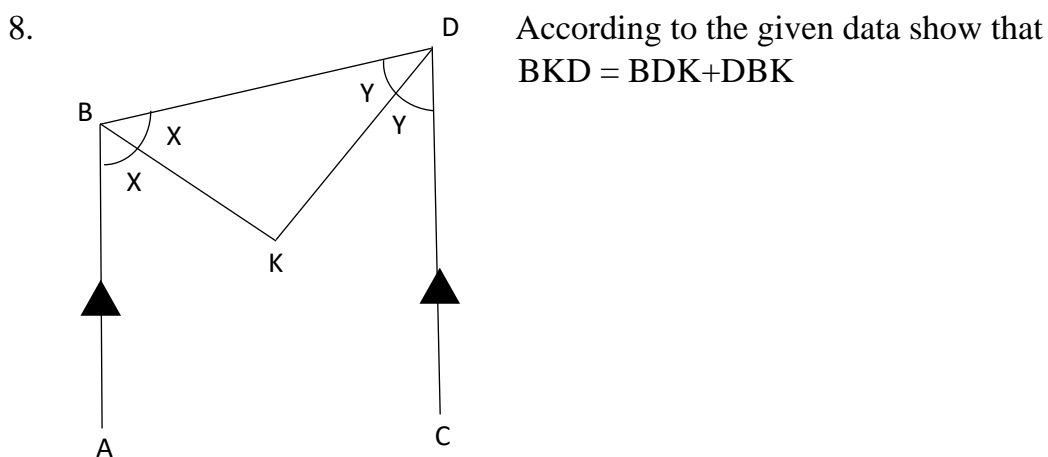
Find  $X$  and  $Y$



If  $\widehat{ABE} = \widehat{BCD}$ ,  $\widehat{ACD}=110^\circ$  and  
 $\widehat{BCD} = 50^\circ$  find  $\widehat{ECD}$ .



7. A, B are two points on a circle of center O such that  $OA=OB$ . If  $AB=4\text{cm}$ , find the length of diameter.



10. The length, breadth and height of a cuboid tank are 4m, 3m and 1.5m respectively.
- I. Find the capacity in Litres.
  - II. If 6000 l water poured, find the height of water.
  - III. Water filled completely and flow out at the rate 600 l per minute find the time taken to empty the tank.

### Worksheet – III

01. The general term of number pattern is given by  $7-3n$ .

- I. Write down the first three terms?
- II. Find the 18<sup>th</sup> term?
- III. Which term is (-53)?
- IV. Write the  $(n-1)$ <sup>th</sup> term in terms of  $n$ .

02. In an auditorium first row consists 5 seats, second row 9 seats, and 3<sup>rd</sup> row 13 seats.

- I. Write down the number of seats in 4<sup>th</sup> row?
- II. Write the general term of above pattern.
- III. How many seats are there in 12<sup>th</sup> row.
- IV. Show that  $\frac{T_{11}}{T_1} = 9$

03. Show that the common term of the number pattern -6, -3, 0, 3 is  $3(n-3)$ .

04. Write the following as binary numbers.

- I. 29
- II. 88
- III. 47
- IV. 115

05. Convert to decimal numbers.

- I.  $11010_{\text{two}}$
- II.  $10011_{\text{two}}$
- III.  $10100_{\text{two}}$
- IV.  $1011_{\text{two}}$

06. Simplify

- I.  $1001_{\text{two}} + 1101_{\text{two}} - 110_{\text{two}}$
- II.  $10111_{\text{two}} - 1101_{\text{two}} + 10011_{\text{two}}$
- III.  $110110_{\text{two}} - 10101_{\text{two}} - 1001_{\text{two}}$
- IV.  $110011_{\text{two}} + 101011_{\text{two}} - 10110_{\text{two}}$

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