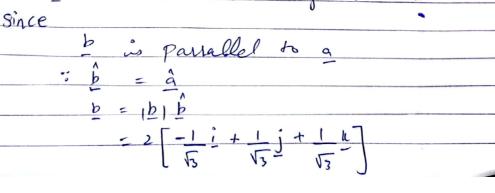
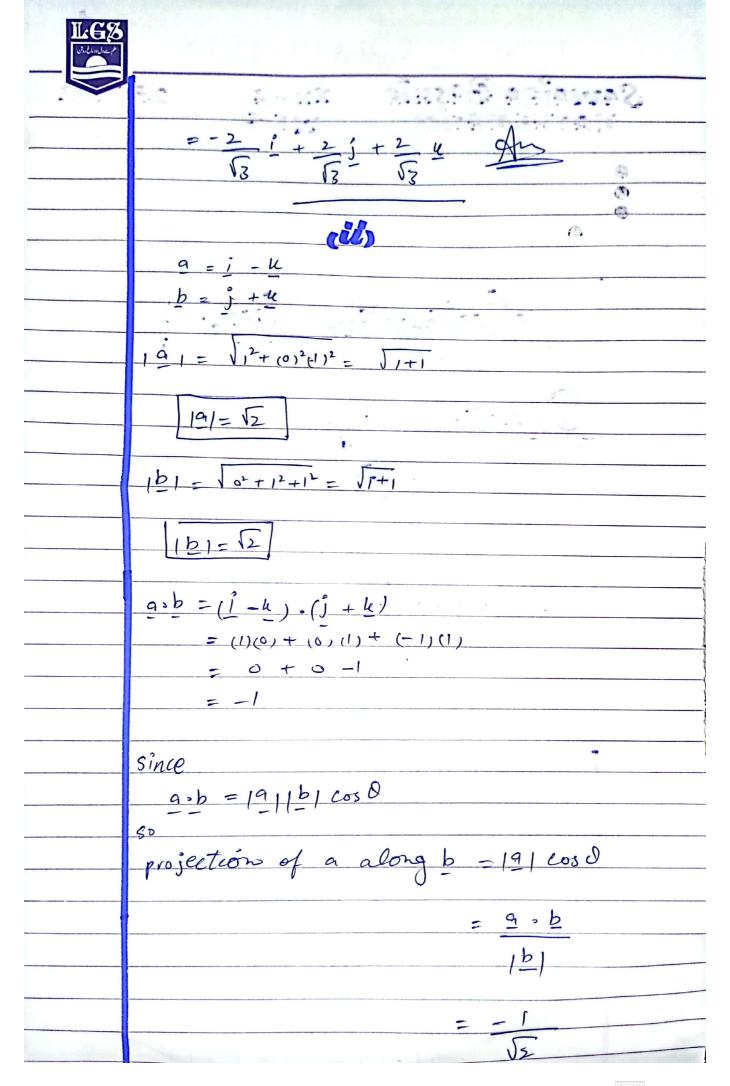


Sheet # LGS GROUP OF COLLEGES Name: SAWAIRA BASHIR Class: XII - A Subject: MATHEMATICS \_\_\_ Test No. \_\_\_\_ Date: **4 8 9 0** 0000 **4 8 9 9 4000** Marks Obtained 00000 0000 0 0 0 0 **@**000 **O**OOO 0000 **B** O O O 00000 **0**000  $\check{\mathbf{0}} \, \check{\circlearrowleft} \, \check{\circlearrowleft}$  $\mathbf{20} \cap \mathbf{0}$ Consider  $|\alpha| = \sqrt{(-1)^2 + (1)^2 + (1)^2} = \sqrt{3}$ Now a = -1+j+k let b be a vector with magnitude 121





Also A(1,-1); B (2,0) C(-1,3); D(-2,2) AB = OB - OA = (2-1) i + [0-(-1)]j  $\overrightarrow{AB} = i + j$  $\overrightarrow{CD} = \overrightarrow{OD} - \overrightarrow{OA}$  $=(-2+1)^{i}+(2-3)^{i}$ 

gB and C be the vertices of a triangle howing position vectors a, b and a sespectively Also, consider D. E, and F are midpoints of sides AR, BC and CA point vector of D=OB = 9+6 point vector of E = OE = b+c point vector of F=OF = = +9 let sight bisector on AD and RC point o (which is an origin) since of is 1 to AB OB. AD =0  $\Rightarrow 1(b+a)(b-a) = 0$ 

⇒ a.b - a.a + b.b - b.a = 0 ⇒ a.b -  a  <sup>2</sup> +  b  <sup>2</sup> - b.a = 0 ⇒ a.b -  a  <sup>2</sup> +  b  <sup>2</sup> - b.a = 0 ⇒  b  <sup>2</sup> -  a  <sup>2</sup> = 0 → D Also $OE \stackrel{?}{=} \stackrel{?}{=} \stackrel{?}{=} O$ ⇒ $\frac{1}{2}b+C$ , $\frac{1}{2}(C-b)=0$ ⇒ $\frac{1}{2}(b+C)$ , $\frac{1}{2}(C-b)=0$ ⇒ $\frac{1}{2}(c-b)+b$ , $\frac{1}{2}(c-b)=0$ ⇒ $\frac{1}{2}(c-a)+c-a$ ⇒ $\frac{1}{2}(c-a)+c-a$ ⇒ $\frac{1}{2}(c-a)+c-a$ ⇒ $\frac{1}{2}(c-a)+c-a$ ⇒ $\frac{1}{2}(c-a)+c-a$	$\Rightarrow (b+a)(b-a)=0$
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	> 9 (b-9)+b(b-9)=0
$ b ^{2} -  a ^{2} = 0 \longrightarrow D$ $ b ^{2} -  a ^{2} = 0 \longrightarrow D$ $ b ^{2} -  a ^{2} = 0 \longrightarrow D$ Therefore $ b ^{2} -  a ^{2} = 0$ $ b ^{2} -  a ^{2} = 0$ $ b ^{2} -  a ^{2} = 0$ $ b ^{2} -  a ^{2} +  a ^{2} = 0$ $ b ^{2} -  a ^{2} +  a ^{2} = 0$ $ c ^{2} -  b ^{2} = 0 \longrightarrow D$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$	$\Rightarrow q.b-q.q+b.b-b.q=0$
$ b ^{2} -  a ^{2} = 0 \longrightarrow D$ $ b ^{2} -  a ^{2} = 0 \longrightarrow D$ $ b ^{2} -  a ^{2} = 0 \longrightarrow D$ Therefore $ b ^{2} -  a ^{2} = 0$ $ b ^{2} -  a ^{2} = 0$ $ b ^{2} -  a ^{2} = 0$ $ b ^{2} -  a ^{2} +  a ^{2} = 0$ $ b ^{2} -  a ^{2} +  a ^{2} = 0$ $ c ^{2} -  b ^{2} = 0 \longrightarrow D$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$	
$ b ^{2} -  a ^{2} = 0 \longrightarrow D$ $ b ^{2} -  a ^{2} = 0 \longrightarrow D$ $ b ^{2} -  a ^{2} = 0 \longrightarrow D$ Therefore $ b ^{2} -  a ^{2} = 0$ $ b ^{2} -  a ^{2} = 0$ $ b ^{2} -  a ^{2} = 0$ $ b ^{2} -  a ^{2} +  a ^{2} = 0$ $ b ^{2} -  a ^{2} +  a ^{2} = 0$ $ c ^{2} -  b ^{2} = 0 \longrightarrow D$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$ $ c ^{2} -  a ^{2} +  c ^{2} -  b ^{2} = 0 + 0$	$\Rightarrow a \cdot b -  a ^2 +  b ^2 - b \cdot q = 0$
Also $\overrightarrow{OE} \stackrel{?}{=} \stackrel{?}{=} \stackrel{?}{=} 0$ Therefore $\overrightarrow{OE} \cdot \overrightarrow{BC} = 0$ $\Rightarrow (b+c) \cdot (c-b) = 0$ $\Rightarrow (b+c) \cdot (c-b) = 0$ $\Rightarrow (c+b) \cdot (c-b) = 0$ $\Rightarrow (c+b) \cdot (c-b) = 0$ $\Rightarrow (c-c-c-b) + b \cdot (c-c-b) = 0$ $\Rightarrow (c-c-c-b) + (c-c-b) = 0$ $\Rightarrow (c-c-c-b) + (c-c-b) + $	** 9.b - b.g
Also $\overrightarrow{OE} \stackrel{?}{=} \stackrel{?}{=} \stackrel{?}{=} 0$ Therefore $\overrightarrow{OE} \cdot \overrightarrow{BC} = 0$ $\Rightarrow (b+c) \cdot (c-b) = 0$ $\Rightarrow (b+c) \cdot (c-b) = 0$ $\Rightarrow (c+b) \cdot (c-b) = 0$ $\Rightarrow (c+b) \cdot (c-b) = 0$ $\Rightarrow (c-c-c-b) + b \cdot (c-c-b) = 0$ $\Rightarrow (c-c-c-b) + (c-c-b) = 0$ $\Rightarrow (c-c-c-b) + (c-c-b) + $	$\Rightarrow  b ^2 -  a ^2 = 0 \Rightarrow D$
Therefore $OE \cdot BC = 0$ $\Rightarrow (b+c) \cdot (c-b) = 0$ $\Rightarrow (b+c) \cdot (c-b) = 0$ $\Rightarrow (c+b) \cdot (c-b) = 0$ $\Rightarrow (c+b) \cdot (c-b) = 0$ $\Rightarrow (c-b) + b \cdot (c-b) = 0$ $\Rightarrow (c-c-b) + b \cdot c - b \cdot b = 0$ $\Rightarrow (c-c-b) + b \cdot c $	
Therefore $OE \cdot BC = 0$ $\Rightarrow (b+c) \cdot (c-b) = 0$ $\Rightarrow (b+c) \cdot (c-b) = 0$ $\Rightarrow (c+b) \cdot (c-b) = 0$ $\Rightarrow (c+b) \cdot (c-b) = 0$ $\Rightarrow (c-b) + b \cdot (c-b) = 0$ $\Rightarrow (c-c-b) + b \cdot c - b \cdot b = 0$ $\Rightarrow (c-c-b) + b \cdot c $	Also
Therefore $OE \cdot BC = 0$ $\Rightarrow (b+c) \cdot (c-b) = 0$ $\Rightarrow (b+c) \cdot (c-b) = 0$ $\Rightarrow (c+b) \cdot (c-b) = 0$ $\Rightarrow (c+b) \cdot (c-b) = 0$ $\Rightarrow (c-b) + b \cdot (c-b) = 0$ $\Rightarrow (c-c-b) + b \cdot c - b \cdot b = 0$ $\Rightarrow (c-c-b) + b \cdot c $	DE à 1 to BC
$\Rightarrow \frac{b+c}{2} \cdot (c-b) = 0$ $\Rightarrow \frac{b+c}{2} \cdot (c-b) = 0$ $\Rightarrow \frac{b+c}{2} \cdot (c-b) = 0$ $\Rightarrow \frac{(c+b)(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-c-c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-c-b)+b(c-b)+b(c-b) = 0}{2}$ $\Rightarrow c(c-c-b)+b(c$	
$\Rightarrow \frac{b+c}{2} \cdot (c-b) = 0$ $\Rightarrow \frac{b+c}{2} \cdot (c-b) = 0$ $\Rightarrow \frac{b+c}{2} \cdot (c-b) = 0$ $\Rightarrow \frac{(c+b)(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-c-c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-c-b)+b(c-b)+b(c-b) = 0}{2}$ $\Rightarrow c(c-c-b)+b(c$	Thorefore
$\Rightarrow \frac{b+c}{2} \cdot (c-b) = 0$ $\Rightarrow \frac{b+c}{2} \cdot (c-b) = 0$ $\Rightarrow \frac{b+c}{2} \cdot (c-b) = 0$ $\Rightarrow \frac{(c+b)(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-c-c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-c-b)+b(c-b) = 0}{2}$ $\Rightarrow \frac{c(c-c-b)+b(c-b)+b(c-b) = 0}{2}$ $\Rightarrow c(c-c-b)+b(c$	OF · BC = 0
$\Rightarrow \frac{1}{2}(b+c)(c-b) = 0$ $\Rightarrow \frac{(b+c)(c-b)}{(c-b)} = 0$ $\Rightarrow \frac{(c+b)(c-b)}{(c-b)} = 0$ $\Rightarrow \frac{(c-c-b)}{(c-c-b)} = 0$ $\Rightarrow \frac{(c-c-c-b)}{(c-c-b)} = 0$	
$\Rightarrow (b+c)(c-b) = 0$ $\Rightarrow (c+b)(c-b) = 0$ $\Rightarrow c \cdot (c-b) + b \cdot (c-b) = 0$ $\Rightarrow  c ^2 -  c ^2 +  c ^2 = 0$ $\Rightarrow  c ^2 -  b ^2 = 0 + 0$ $\Rightarrow  c ^2 -  a ^2 +  c ^2 -  b ^2 = 0 + 0$ $\Rightarrow  c ^2 -  a ^2 - 0$ $\Rightarrow  c ^2 -  a ^2 - 0$	2
$\Rightarrow (b+c)(c-b) = 0$ $\Rightarrow (c+b)(c-b) = 0$ $\Rightarrow c \cdot (c-b) + b \cdot (c-b) = 0$ $\Rightarrow  c ^2 -  c ^2 + b \cdot c -  b ^2 = 0$ $\Rightarrow  c ^2 -  b ^2 - 0 \Rightarrow  c ^2 -  b ^2 = 0$ $\Rightarrow  c ^2 -  b ^2 - 0 \Rightarrow  c ^2 -  b ^2 = 0 + 0$ $\Rightarrow  c ^2 -  a ^2 +  c ^2 -  b ^2 = 0 + 0$ $\Rightarrow  c ^2 -  a ^2 +  c ^2 -  b ^2 = 0 + 0$ $\Rightarrow  c ^2 -  a ^2 - 0$ $\Rightarrow  c ^2 -  a ^2 - 0$	$\Rightarrow l_1 h_2 + C_1 \cdot C_1 - h_1 = 0$
$\Rightarrow (c + b)(c - b) = 0$ $\Rightarrow (c + b)(c - b) = 0$ $\Rightarrow (c + c) + b \cdot c - b \cdot b = 0$ $\Rightarrow  c ^2 -  b ^2 = 0 \Rightarrow  c ^2 -  b ^2 = 0$ $\Rightarrow  c ^2 -  b ^2 = 0 \Rightarrow  c ^2 -  b ^2 = 0$ $\Rightarrow  c ^2 -  b ^2 = 0 \Rightarrow  c ^2 +  c ^2 -  b ^2 = 0 + 0$ $\Rightarrow  c ^2 -  a ^2 +  c ^2 -  b ^2 = 0 + 0$ $\Rightarrow  c ^2 -  a ^2 - 0$ $\Rightarrow  c ^2 -  a ^2 - 0$	2 (2 -) (2 -)
$\Rightarrow (c + b)(c - b) = 0$ $\Rightarrow (c + b)(c - b) = 0$ $\Rightarrow (c + c) + b \cdot c - b \cdot b = 0$ $\Rightarrow  c ^2 -  b ^2 = 0 \Rightarrow  c ^2 -  b ^2 = 0$ $\Rightarrow  c ^2 -  b ^2 = 0 \Rightarrow  c ^2 -  b ^2 = 0$ $\Rightarrow  c ^2 -  b ^2 = 0 \Rightarrow  c ^2 +  c ^2 -  b ^2 = 0 + 0$ $\Rightarrow  c ^2 -  a ^2 +  c ^2 -  b ^2 = 0 + 0$ $\Rightarrow  c ^2 -  a ^2 - 0$ $\Rightarrow  c ^2 -  a ^2 - 0$	$\Rightarrow ib+c \cdot ic \cdot b \cdot -c$
$\Rightarrow c \cdot (c-b) + b \cdot (c-b) = 0$ $\Rightarrow  c ^2 - c \cdot b + b \cdot c -  b ^2 = 0$ $\Rightarrow  c ^2 -  b ^2 = 0 \Rightarrow  c ^2 -  b ^2 = 0$ $\Rightarrow  c ^2 -  b ^2 = 0 \Rightarrow  c ^2 +  c ^2 -  b ^2 = 0 + 0$ $\Rightarrow  c ^2 -  a ^2 +  c ^2 -  b ^2 = 0 + 0$ $\Rightarrow  c ^2 -  a ^2 - 0$ $\Rightarrow  c ^2 -  a ^2 - 0$	
$\Rightarrow \frac{c \cdot c - c \cdot b + b \cdot c - b \cdot b}{ c ^2 - c \cdot b + b \cdot c -  b ^2 = 0}$ $\Rightarrow \frac{ c ^2 -  b ^2 = 0 \Rightarrow  c ^2 -  b ^2 = 0}{ c ^2 -  b ^2 = 0 \Rightarrow  c ^2 +  c ^2 -  b ^2 = 0 + 0}$ $\Rightarrow \frac{ c ^2 -  a ^2 +  c ^2 -  b ^2 = 0 + 0}{ c ^2 -  a ^2 - 0}$ $\Rightarrow \frac{ c ^2 -  a ^2 - 0}{ c ^2 -  a ^2 - 0}$	$\frac{(c+b)(c-b)}{c}$
$ C ^{2} - (b + b \cdot c -  b ^{2} = 0$ $ C ^{2} -  b ^{2} = 0 \rightarrow 2  : c \cdot b = b \cdot c$ Adding (1) and (2), we have $ b ^{2} -  a ^{2} +  C ^{2} -  b ^{2} = 0 + 0$ $ C ^{2} -  a ^{2} +  C ^{2} -  b ^{2} = 0 + 0$ $ C ^{2} -  a ^{2} +  C ^{2} -  a ^{2} = 0$	= (C-D) + D(C-D) = 0
$Aelding ① and ② , we have   b ^2 -  a ^2 +  C ^2 -  b ^2 = 0 + 0$ $ C ^2 -  a ^2 +  C ^2 -  b ^2 = 0 + 0$ $ C ^2 -  a ^2 - 0$	$\frac{7 \cdot (-c,b+b,c-b,b=0)}{2}$
Adding (1) and (2), we have $ b ^{2} -  a ^{2} +  C ^{2} -  b ^{2} = 0 + 0$ $ C ^{2} -  a ^{2} - 0$ $ C ^{2} -  a ^{2} - 0$	3   C  - C.b + b.c -   b  - 0
Adding (1) and (2), we have $ b ^{2} -  a ^{2} +  C ^{2} -  b ^{2} = 0 + 0$ $ C ^{2} -  a ^{2} - 0$ $ C ^{2} -  a ^{2} - 0$	
Adding (1) and (2), we have $ b ^{2} -  a ^{2} +  C ^{2} -  b ^{2} = 0 + 0$ $ C ^{2} -  a ^{2} - 0$ $ C ^{2} -  a ^{2} - 0$	=  C  -  b  = 0 -> 2   : c.b = b.c
$\Rightarrow \frac{1}{1 + 1} + \frac{1}{1 + 1} + \frac{1}{1 + 1} = 0 + 0$	
$\Rightarrow \frac{1}{1 + 1} + \frac{1}{1 + 1} + \frac{1}{1 + 1} = 0 + 0$	Helding (1) and (2), we have
$\Rightarrow (C+9)(C-9)=0$	1-1-1-1-1-1-1-1-2-0+0
C+911C-91-6	1912 - 1912
$\left(\begin{array}{c} 1 \\ 1 \\ 1 \end{array}\right) \cdot \left(\begin{array}{c} 1 \\ 1 \\ 1 \end{array}\right) = 0$	C+911C-91-5
	$(C+9)\cdot(C-9)=0$

OF is also right miseeler of e perpendicular biseelor o