3a) (D) $4y+5x+7=0$ | which is of the form $y=ax+b$

$y=-\frac{5}{4}x-\frac{7}{4}$ | where b is the ordinate of the origin.

¼ and $b=-\frac{7}{4}<0$ ✓

¼ Thus, (D) cuts the negative y-axis. ✓

b) $(\psi) \parallel (D)$ (given)

¼ mean $a_{(\psi)} = a_{(D)} = -\frac{5}{4}$

¼ B belongs to (ψ);

Then, (ψ): $\frac{y-y_B}{x-x_B} = \frac{-5}{4}$ | $4y+4=-5x+20$

$\frac{y+1}{x-4} = \frac{-5}{4}$ | (ψ): $y=-\frac{5}{4}x+4$. ¼

c) ¼ 1- Find eqn of a st. line (L) perp. to (D) & (ψ) and passes through B.

¼ 2- Find coordinates of N, pt of intersection (ψ) & (L).

¼ 3- Find distance between N & B.

4) H is image of G by $\vec{AB}+\vec{AD}$ (given)

¼ then $\vec{GH} = \vec{AB}+\vec{AD}$

¼ $\vec{GH} = \vec{AC}$ (parallelogram rule: sum of two vectors having same origin).

Then, GHCA is a parm

¼ So; **AG = CH** | which means that distance between a variable

but G belongs to $\Omega(A,2)$ | pt H & a fixed pt C is constant

¼ then AG = 2 cm | ½ Thus, as G varies on (Ω) then H moves

¼ Hence CH = 2cm | on a circle of center C & radius 2cm.

5th - exercise

1a) In quadrilateral ABCD we have:

¼ (AC) ⊥ (BD) (given) | O is center of (C) given)

¼ AC = BD (diameters of same circle) | then O is midpt of [AC] & [BD]

¼ Thus, quadrilateral ABCD is a square (having its diagonals equal perp bisectors of each other) ✓

b) D is a pt of (C) with diameter [AC] (given)

isosceles ½ then $\hat{CDA}=90°$ (inscribed angle facing diameter)

but AD = DC (adjacent sides of a square)