So, $a_{(OH)} = \dfrac{y_H - y_O}{x_H - x_O} = \dfrac{\frac{8}{5}}{-\frac{8}{10}} = -\dfrac{1}{2}$.

& $a_{(d)} = 2$. (from eqn of (d)).

hence, $a_{(OH)} \times a_{(d)} = 2\left(-\frac{1}{2}\right) = -1$

then, (OH) is perpendicular to (d).

but H belongs to (d) (proved)

Thus, H is the orthogonal projection of point O on (d).

3a). (d) cuts $x'ox$ at A (given)

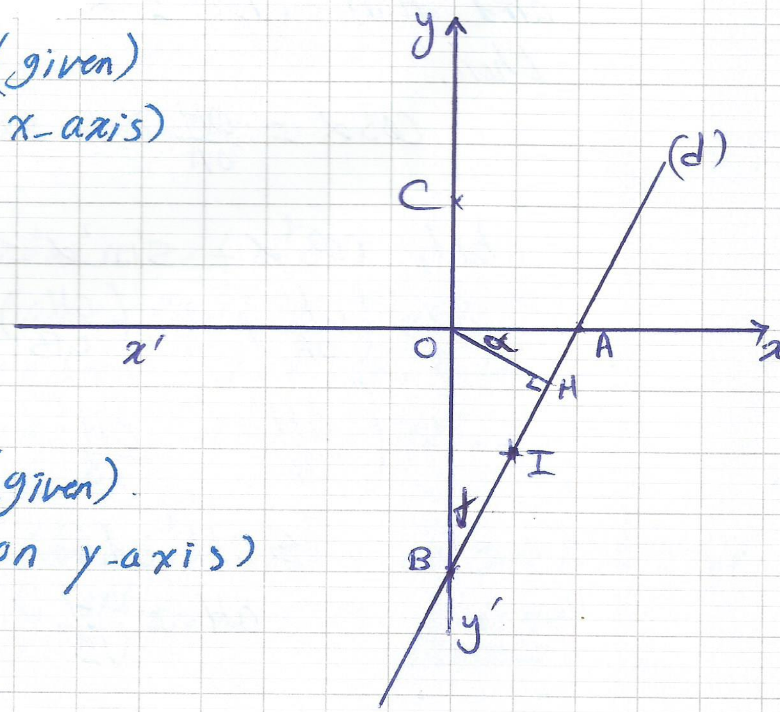
then $y_A = 0$ (pt on x-axis)

& A belongs to (d).

then, $0 = 2x_A - 4$

$x_A = 2$

Thus, $\boxed{A(2,0)}$.



(d) cuts $y'oy$ at B (given).

then $x_B = 0$ (pt on y-axis)

& B belongs to (d)

then $y_B = 2(0) - 4$

$y_B = -4$

Thus $\boxed{B(0,-4)}$

b). In right triangle OAH we have:

$\cos A\hat{O}H = \dfrac{adj}{hyp} = \dfrac{OH}{OA} = \dfrac{OH}{2}$ (OA = 2cm)

In right triangle OBH we have

$\sin O\hat{B}H = \dfrac{opp}{hyp} = \dfrac{OH}{OB} = \dfrac{OH}{4}$. (OB = 4 cm).