#5

PERP. TO $-8x + 4y - 1 = 0$

THRU $(\underset{x}{-1}, \underset{y}{-3})$

① FIND m

    ⓐ WRITE GIVEN LINE IN SLOPE INTERCEPT FORM

$$-8x + 4y - 1 = 0$$

$$4y = 8x + 1$$

$$\frac{4}{4}y = \frac{8}{4}x + \frac{1}{4}$$

$$y = 2x + \frac{1}{4}$$

    ⓑ IDENTIFY SLOPE

        SLOPE IS 2

RECALL

$x = 2$ $y = 3$

#6 PARALLEL TO $x = -5$

    THRU $(7,1)$

#7 PERP TO $y = 2$

    THRU $(3, -1)$

ⓒ PERP. LINES HAVE SLOPES THAT ARE NEGATIVE RECIPROCALS

$$2 \rightarrow \frac{2}{1} \rightarrow \frac{1}{2} \rightarrow -\frac{1}{2}$$

START WITH SLOPE FROM ⓑ	WRITE IN FRAC. FORM	FLIP IT	CHANGE ITS SIGN

SO $m = -\frac{1}{2}$

ⓐ PLUG IN GIVEN POINT FOR x, y. PLUG IN m AND SOLVE FOR b

$$y = mx + b$$
$$-3 = -\frac{1}{2}(-1) + b$$
$$-3 = \frac{1}{2} + b$$

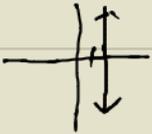$$-3 - \frac{1}{2} = b$$
$$-\frac{7}{2} = b$$

③ WRITE ANSWER

$$y = mx + b$$

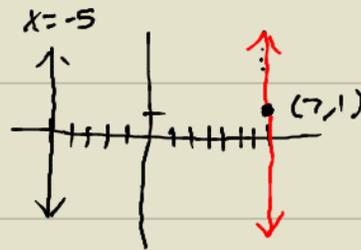$$\boxed{y = -\frac{1}{2}x - \frac{7}{2}}$$

$x = -5$

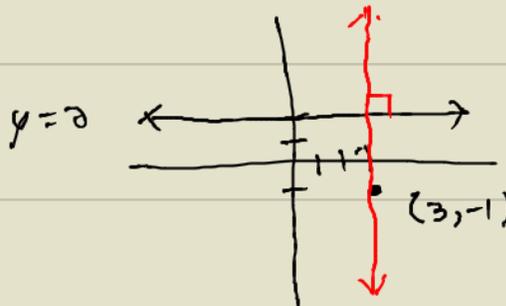$(7,1)$

$\boxed{x = 7}$

$y = 2$

$(3, -1)$

$\boxed{x = 3}$