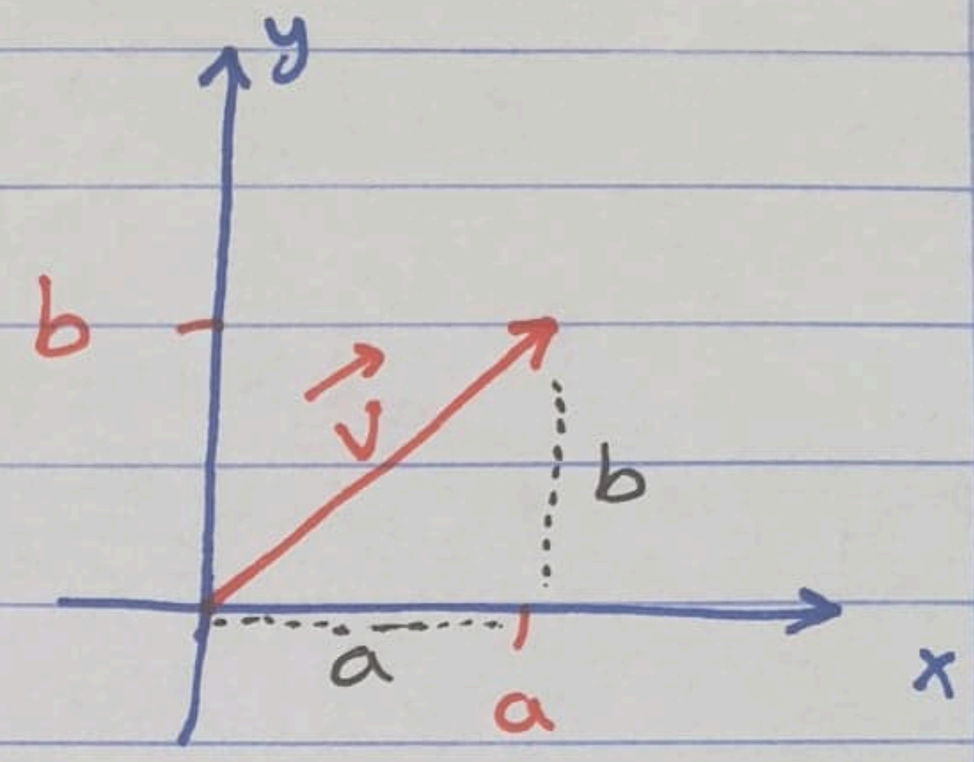
12.3 Lecture Problems

32 show that $\vec{V} = a\vec{i} + b\vec{j}$ // to the line $bx - ay = c$

- The slope of $\vec{V}$ is $\frac{b}{a}$



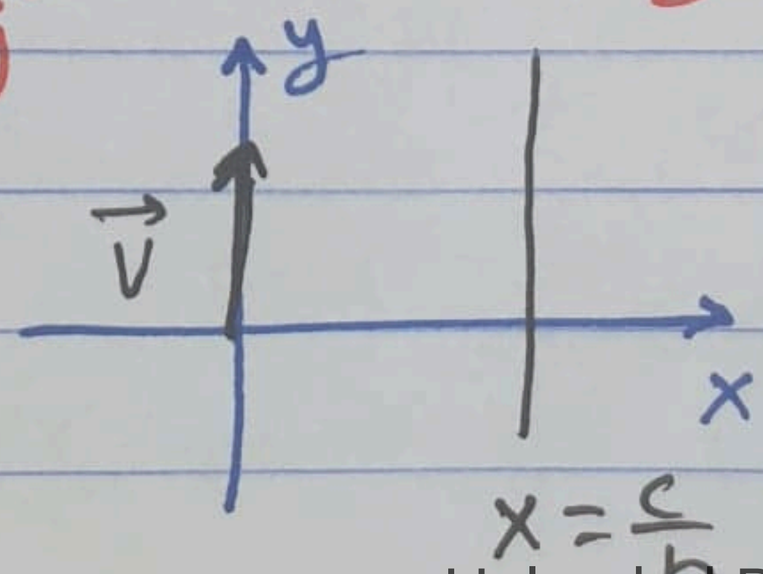
- The slope of the line:

$$ay = bx - c \Rightarrow y = \frac{b}{a}x - \frac{c}{a} \quad \boxed{a \neq 0}$$

$$\Rightarrow \text{slope} = \frac{b}{a}$$

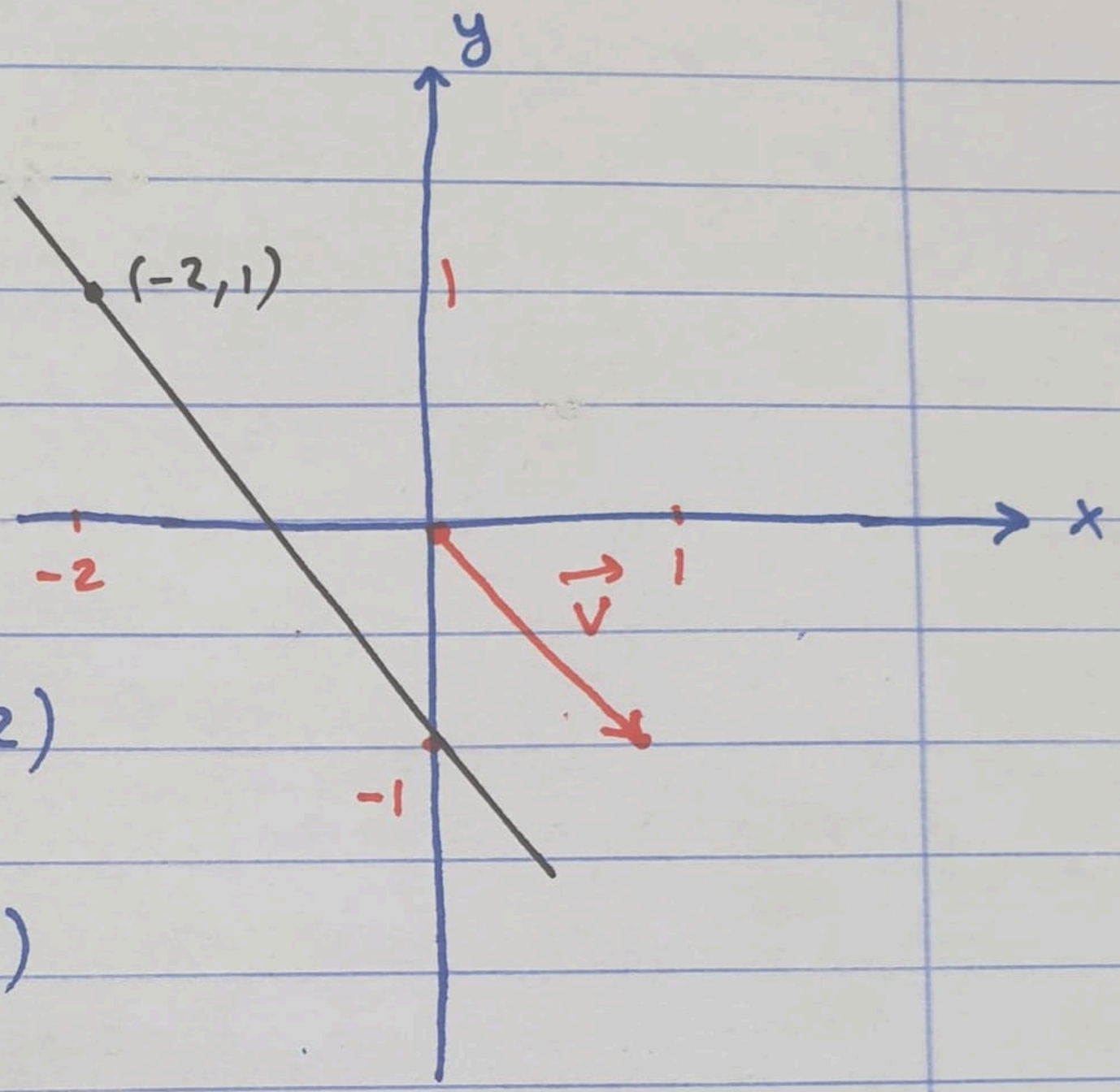
- if $a = 0 \Rightarrow bx = c \Rightarrow x = \frac{c}{b} > 0$

$$\Rightarrow \vec{v} = b\vec{j}$$



37 Use Exercise 32 to find the line through $(-2,1)$ and // to $\vec{v} = \vec{i} - \vec{j}$

slop of line is $\frac{b}{a} = -1$



$y - y_0 = m(x - x_0)$

$y - 1 = -1(x - -2)$

$y - 1 = -(x + 2)$

$y = -x - 2 + 1$

$$\boxed{y = -x - 1}$$