

Start with two sites

we have to draw an edge that contains all points that are equidistant from both sites.

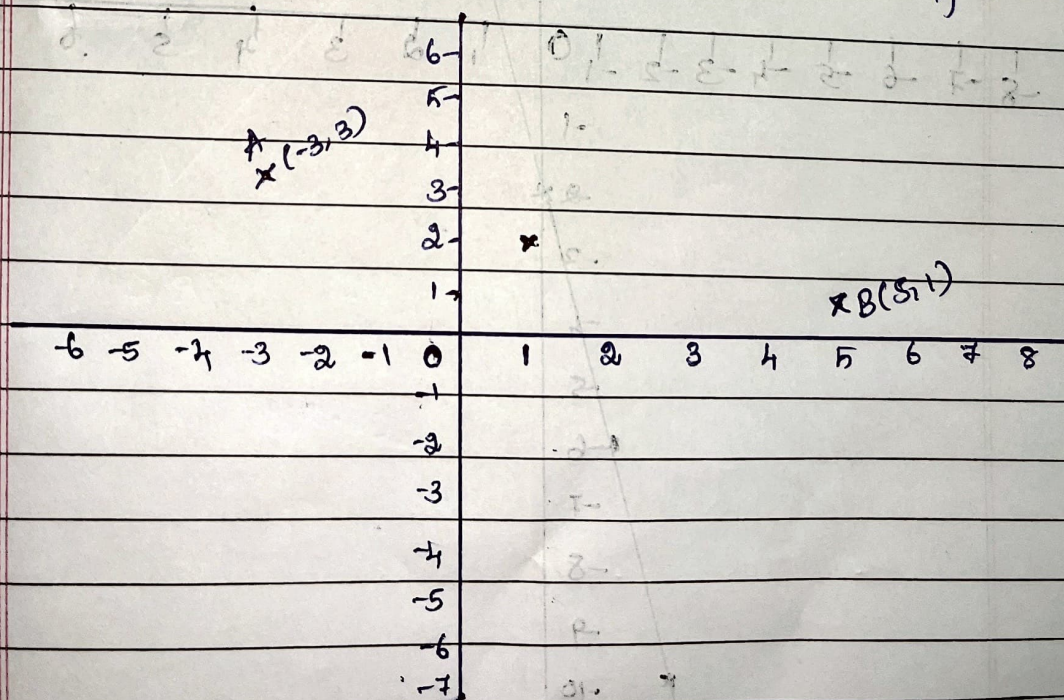
→ The edge will be a perpendicular bisector.

Steps: (Consider two sites, $A(-3, 3)$ and $B(5, 1)$)

1) Find the Midpoint between A and B.

2) Find the Slope between A and B.

3) Use the mid point and the perpendicular Slope to write the equation of the line.



Mid point = $(1, 2)$

Slope = $1/4$

Perpendicular

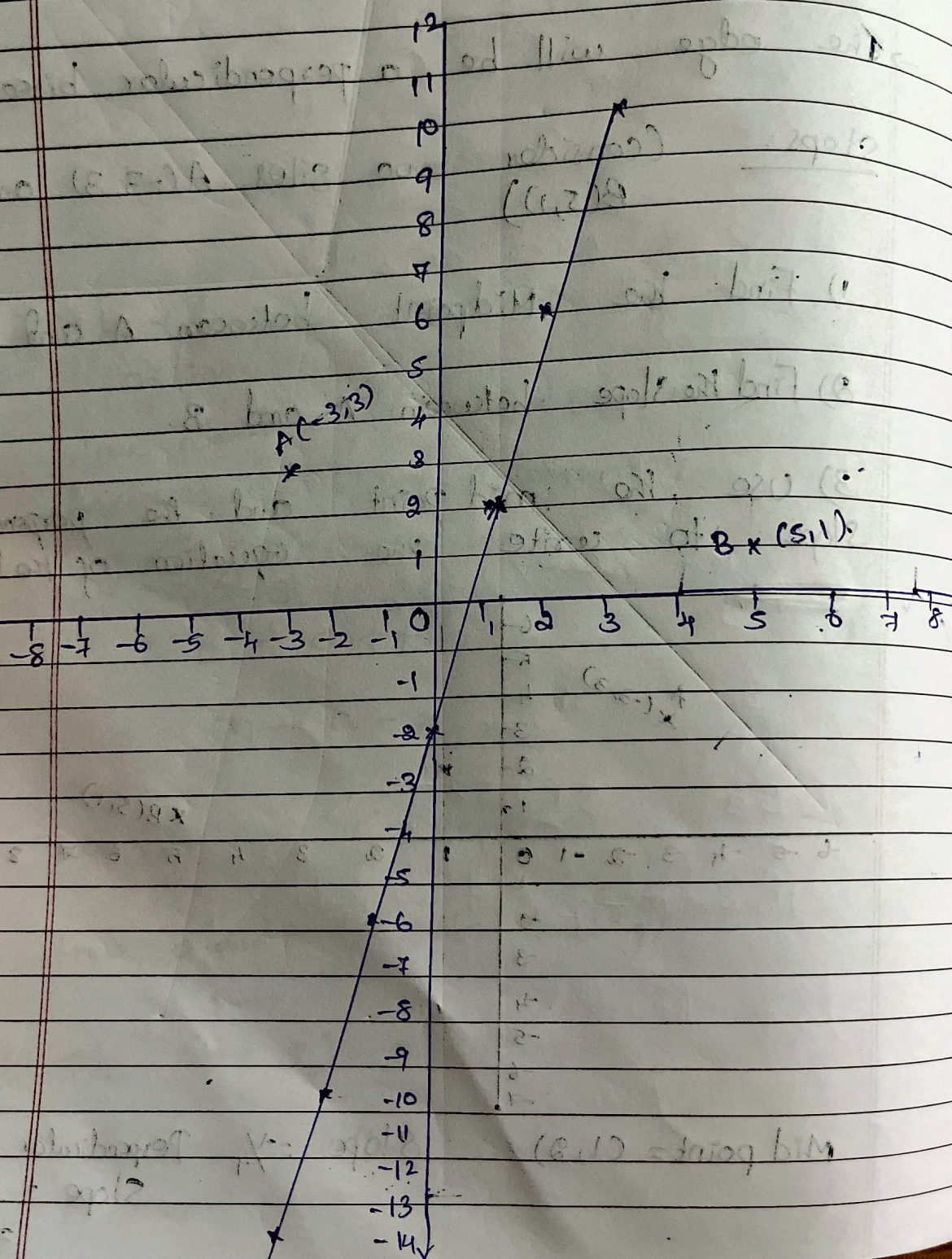
Slope = 4

Edge has equation

$$y - 2 = 4(x - 1)$$

$$y = 4x - 4 + 2 = y = 4x - 2$$

x	-4	-3	-2	-1	0	1	2	3	4
y	-18	-14	-10	-6	-2	2	6	10	14



Consider 3 sites.

A $(-6, 7)$, B $(-6, -3)$ C $(8, 5)$

Mid point b/w A & B = $(-6, 2)$

Slope: $\frac{y}{x} \rightarrow \frac{0}{0} \rightarrow 1$ ~~Slope~~ Slope = 0

$$y - 2 = 0(x + 6)$$

$$\boxed{y = 2}$$

Mid point b/w (B, C) = $(-2, 1)$

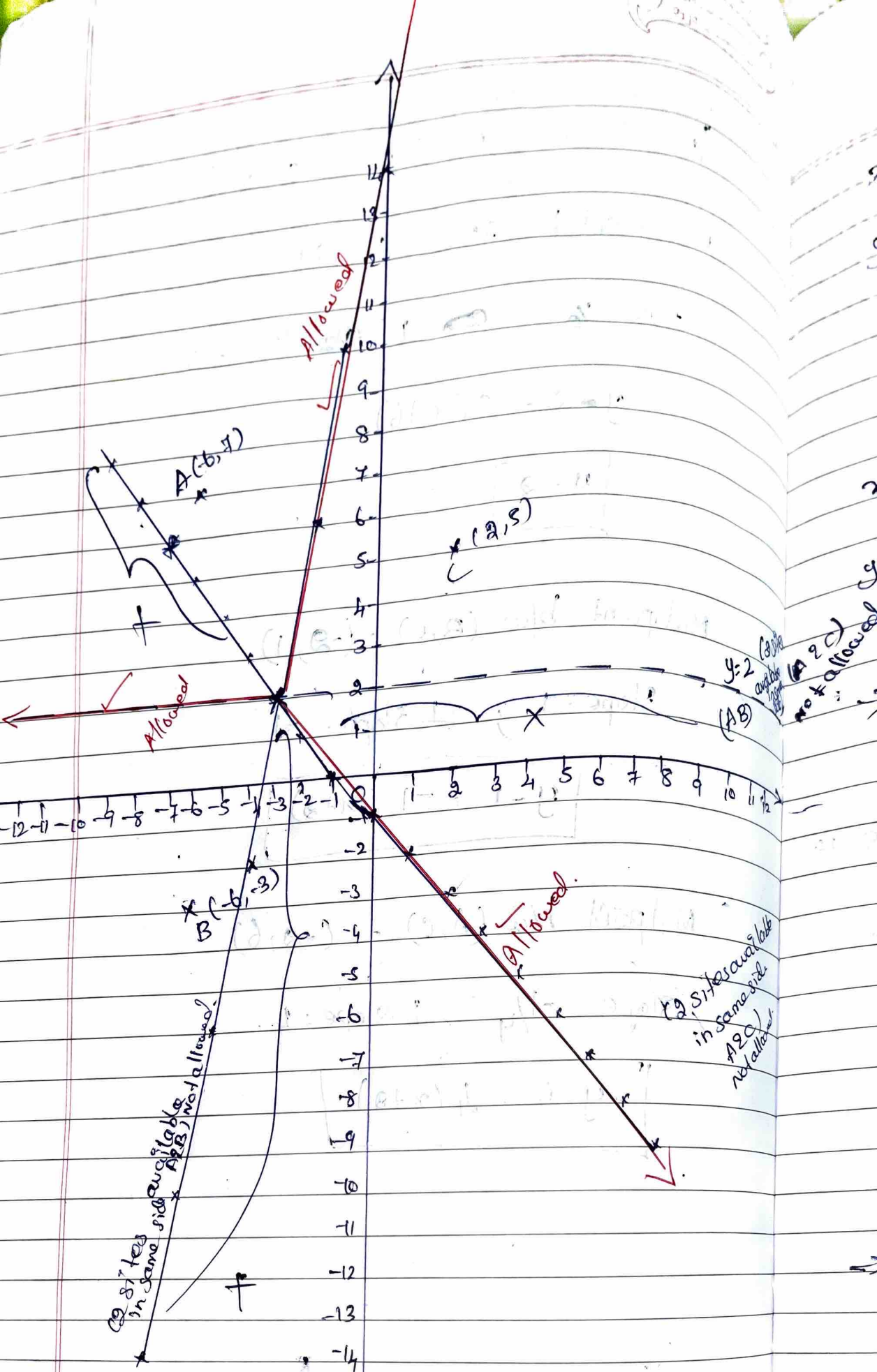
Slope: 1 ; \perp Slope: -1

$$\boxed{y - 1 = -1(x + 2)}$$

Mid point b/w (A, C) = $(-2, 6)$

Slope: $-1/4$ \perp Slope: 4

$$\boxed{y - 6 = 4(x + 2)}$$



BC line equation

x	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9
y	7	6	5	4	3	2	1	0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10

AC line equation

x	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
y	-14	-10	-6	-2	2	6	10	14	18	22	26	30	34	38

no. of allowed.

→ For line $y=2$, site C is near additionally.

while inserting the city '3' (cc) the line

$y=2$ fails to separate the 8 cities. \therefore

we need to find proper separation.

we remove the parts of the edges that are closer to a third site than the two sites in its name.

→ for line $(y-1) = -1(x+2)$: Site A is near

So remove that ^{parts of the} edges that are closer to the third site than the two sites.

→ for line $(y-6) = 1(x+2)$: Site B is near

remove the parts of edges.