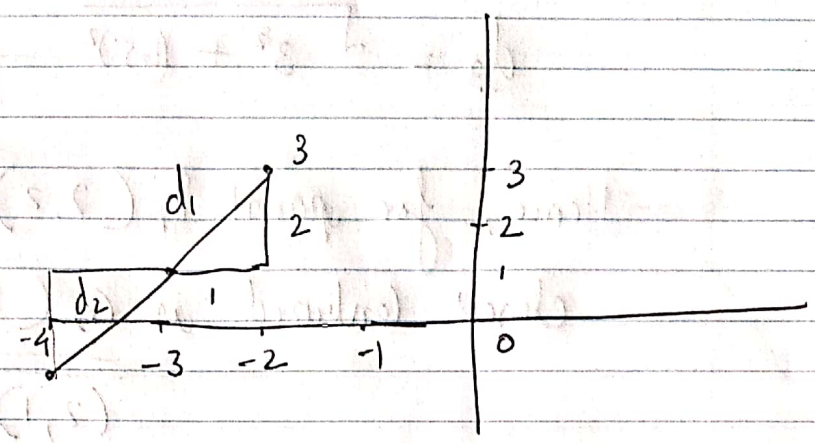
47)



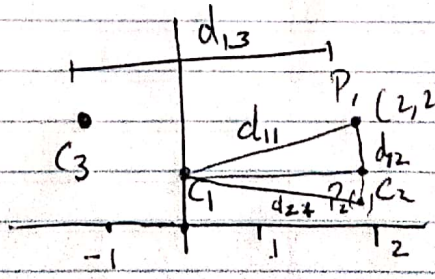
Euclidi = $\sqrt{d_1} = 2^2 + 1^2 = \sqrt{5}$

Eu distance = $\sqrt{d_2} = 2^2 + 1^2 = \sqrt{5}$

Since all point are equidistant from $(-2, 3)$ and $(-4, -1)$ Centroid is $(-3, 1)$

48

distance of P_1 from C_2, C_1, C_3



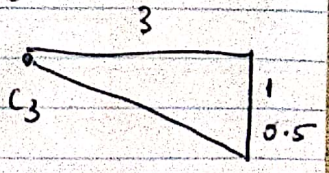
length from x axis

~~$2^2 + 2^2 = \sqrt{8} = 2\sqrt{2}$~~

closest → ~~(d_{12})~~ distance from $C_2 = 1$

(d_{12}) distance from $C_1 = \sqrt{2^2 + 1^2} = \sqrt{5} = 2.2$

(d_{13}) distance from $C_3 = 3$



$P_2(2, 0.5)$ from C_1, C_2, C_3

(d_{22}) Distance from $C_2 = 0.5$,

(d_{21}) Distance from $C_1 = \sqrt{2^2 + 0.5^2} = 1 = \sqrt{1} = 1$

48. $d_{23} = \sqrt{3^2 + (1.5)^2} = \sqrt{11.25} = 3.3$

Hence, for point $P_1 (2,2)$

closest centroid is $C_2 (1)$ < then C_1 & C_3

$(2,1)$

for point $P_2 (2, 0.5)$

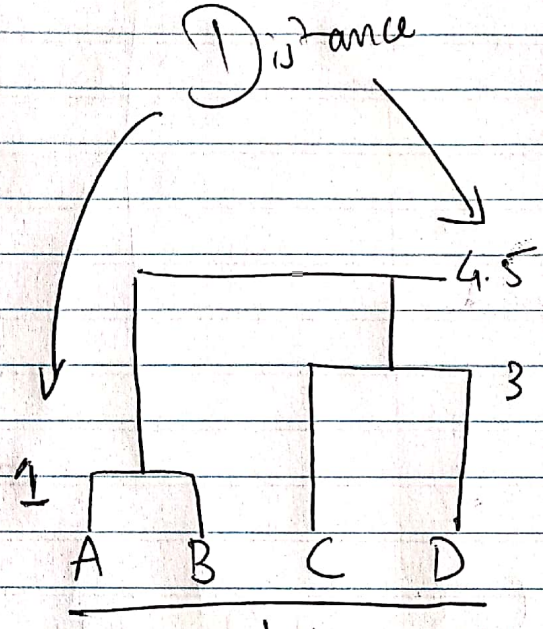
Closest Centroid is $C_2 (2,1)$ with distance $= 0.5$

Hence both $(2,2)$, & $(2, 0.5)$ belongs to same cluster $C_2 (2,1)$

(Centroid)

49

	A	B	C	D
A	0	1	4	5
B	1	0	2	6
C	4	2	0	3
D	5	6	3	0



Using Average link

new →

	AB	C	D
AB	0		
C	3.5	0	
D	5.5	3	0

new →

	AB	CD
AB	0	
CD	4.5	0

$\frac{3.5 + 5.5}{2}$ = 9/2

1) First A is merged with B

2) C is merged with D

Then AB is merged CD

36 $R = 3^d - 2^{d+1} + 1$

Total items are 6 =

hence $3^6 - 2^{6+1} + 1$

$729 - 128 + 1$

$= 602$