Pick K random cluster centers, $c^1 \ldots c^k$
For t=1..T:

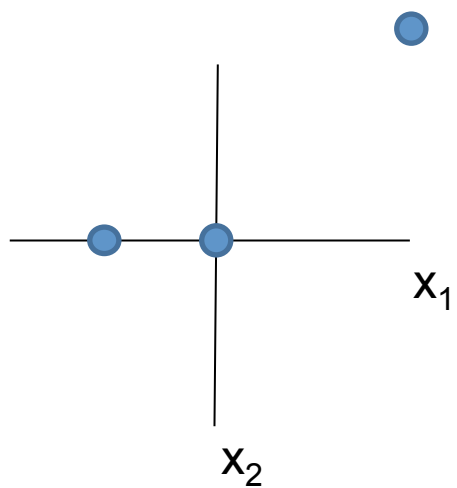
- for j = 1.. n: [recompute assignments]

$$a^j = \arg\min_i dist(x^j, c^i)$$

- for j= 1…k: [recompute cluster centers]

$$c^j = \frac{1}{|\{i|a^i = j\}|} \sum_{\{i|a^i=j\}} x^i$$

x_1	x_2
-1	0
0	0
2	2



$$dist(x, x') = \sum_i (x_i - x'_i)^2$$

Random cluster means:

- c^1=[-1,0], c^2=[0,0]

t=0:

$d(x^j,c^i)$	x^1	x^2	x^3
c^1	0	1	13
c^2	1	0	8

- $a^1 = \text{argmin}_i\ dist(x^1,c^i) = 1$
- $a^2 = \text{argmin}_i\ dist(x^2,c^i) = 2$
- $a^3 = \text{argmin}_i\ dist(x^3,c^i) = 2$
- $c^1 = (1/1) * [-1,0] = [-1,0]$
- $c^2 = (1/2) * ([0,0]+[2,2]) = [1,1]$

t=1:

$d(x^j,c^i)$	x^1	x^2	x^3
c^1	0	1	13
c^2	4	4	18

- $a^1 = \text{argmin}_i\ dist(x^1,c^i) = 1$
- $a^2 = \text{argmin}_i\ dist(x^2,c^i) = 1$
- $a^3 = \text{argmin}_i\ dist(x^3,c^i) = 2$
- $c^1 = (1/2) * ([-1,0]+[0,0]) = [-0.5,0]$
- $c^2 = (1/1) * ([2,2]) = [2,1]$

t=2:

- Stop!! (cluster assignments a^i won't change in next round; you can verify!)