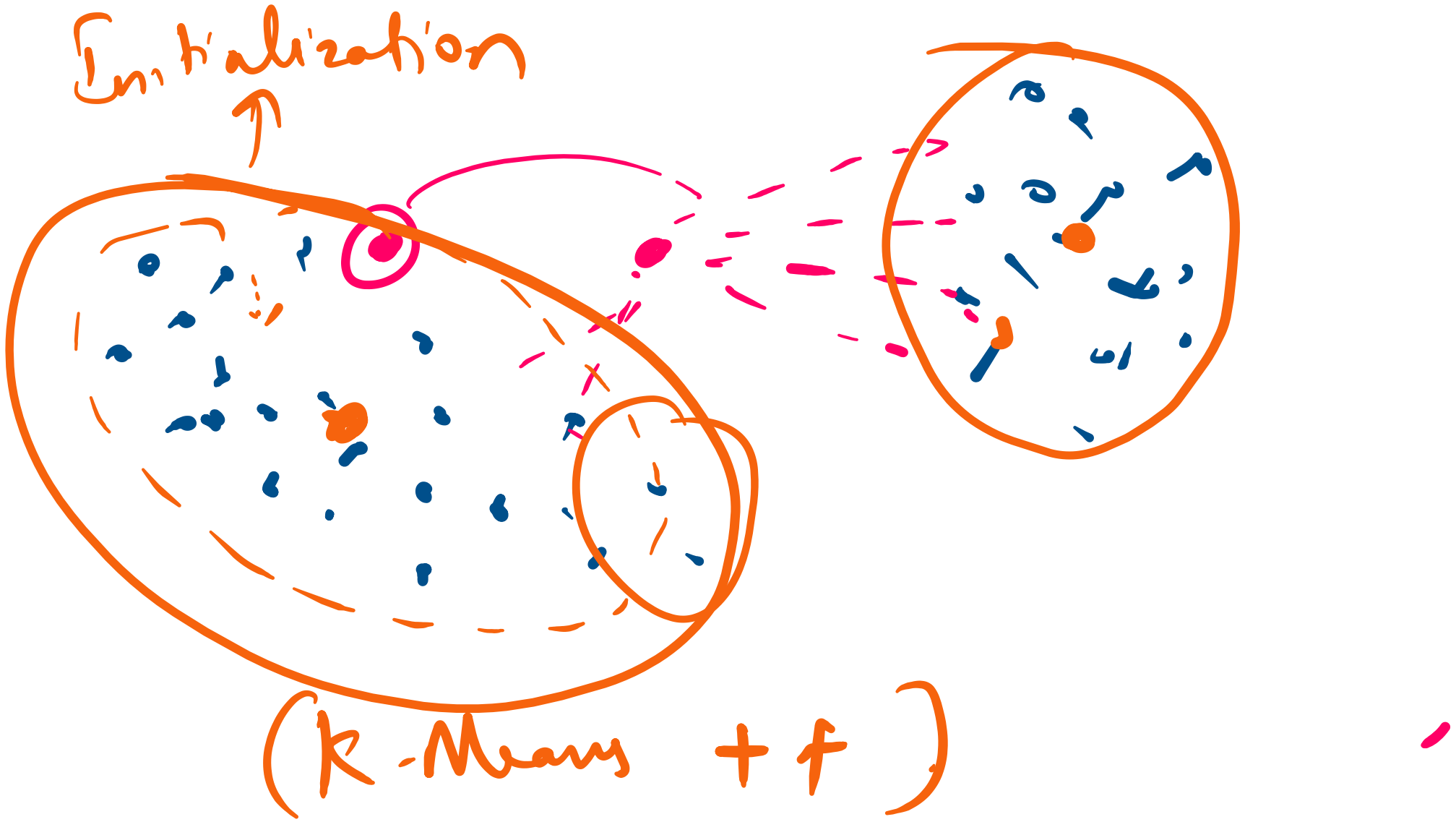

Initialization
(K-Means +f)

K-Means:

$S = \{2, 3, 4, 10, 11, 12, 20, 25, 30\}$

5 18 7 25

say $\Rightarrow \boxed{k = 2}$

① 1 → 4 2 → 12.

② $k_1 = \{2, 3, 4\}$ $k_2 = \{10, 11, 12, 20, 25, 30\}$

③

$k_1 \quad \frac{2+3+4}{3} = 3$

$k_2 = \frac{10 + 11 + 12 + 20 + 25 + 30}{6}$

$k_2 = 18$

Step 2 ⇒ (again)

$m_1 = 3$; $m_2 = 18$

$k_1 = \{2, 3, 4, 10\}$

$k_2 = \{11, 12, 20, 25, 30\}$

$$m_1 = \frac{2+3+4+10}{4}$$

$$k_2 = \frac{11+12+20+25+30}{5}$$

$m_1 = 4.75$

$\simeq 5$

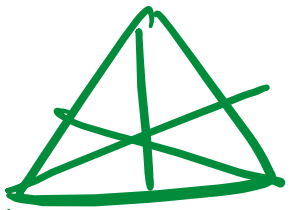
$m_2 = 19.6$

$\simeq 20$

Step (2) (again) $\left(\frac{x_1+x_2+x_3}{3}, \frac{y_1+y_2+y_3}{3}\right)$

$k_1 = \{2, 3, 4, 10, 11, 12\}$

$k_2 = \{20, 25, 30\}$



$m_1 = \frac{2+3+4+10+11+12}{6}$ $\quad$ $m_2 = \frac{20+25+30}{3}$

$m_1 =$ (7) - Centroid

$m_2 =$ (25) → Centroid

$k_1 = \{2, 3, 4, 10, 11, 12\}$

$k_2 = \{20, 25, 30\}$

Stop => If the mean of the previous step is same