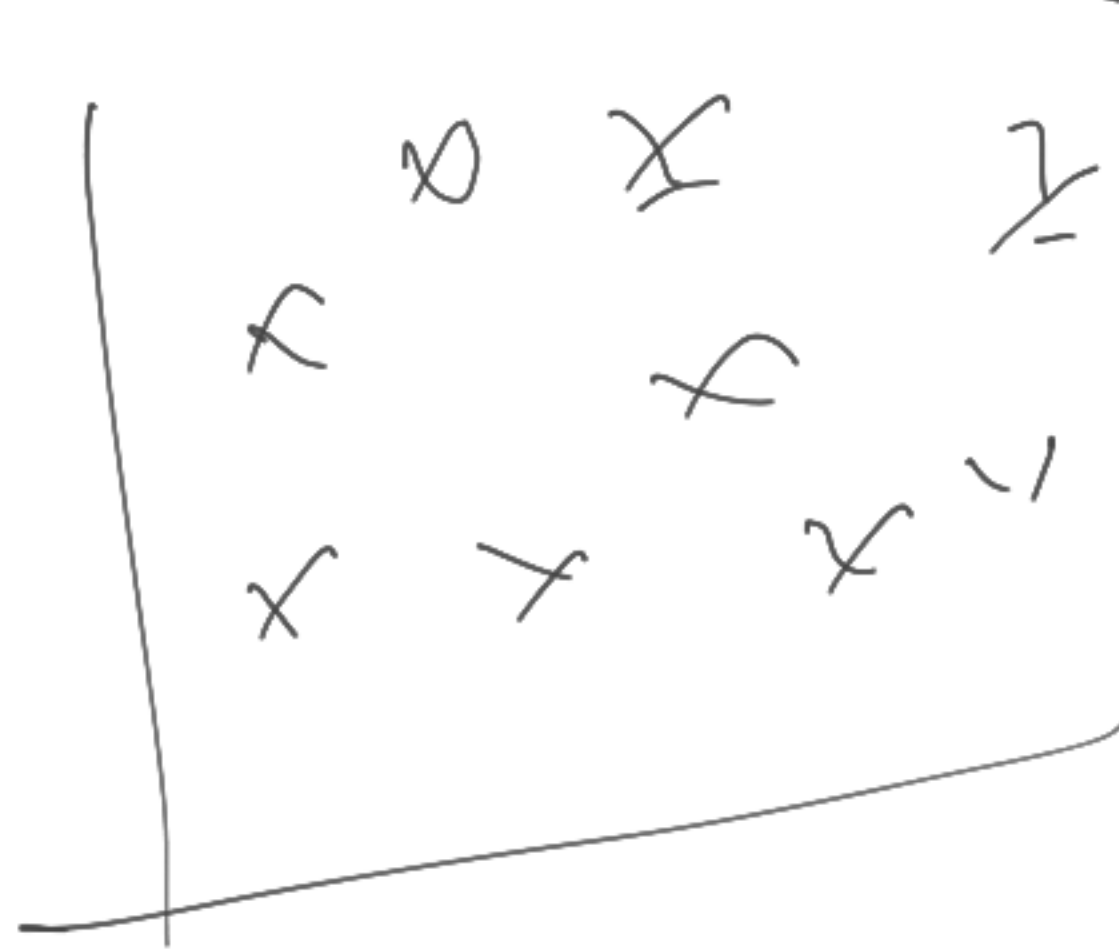


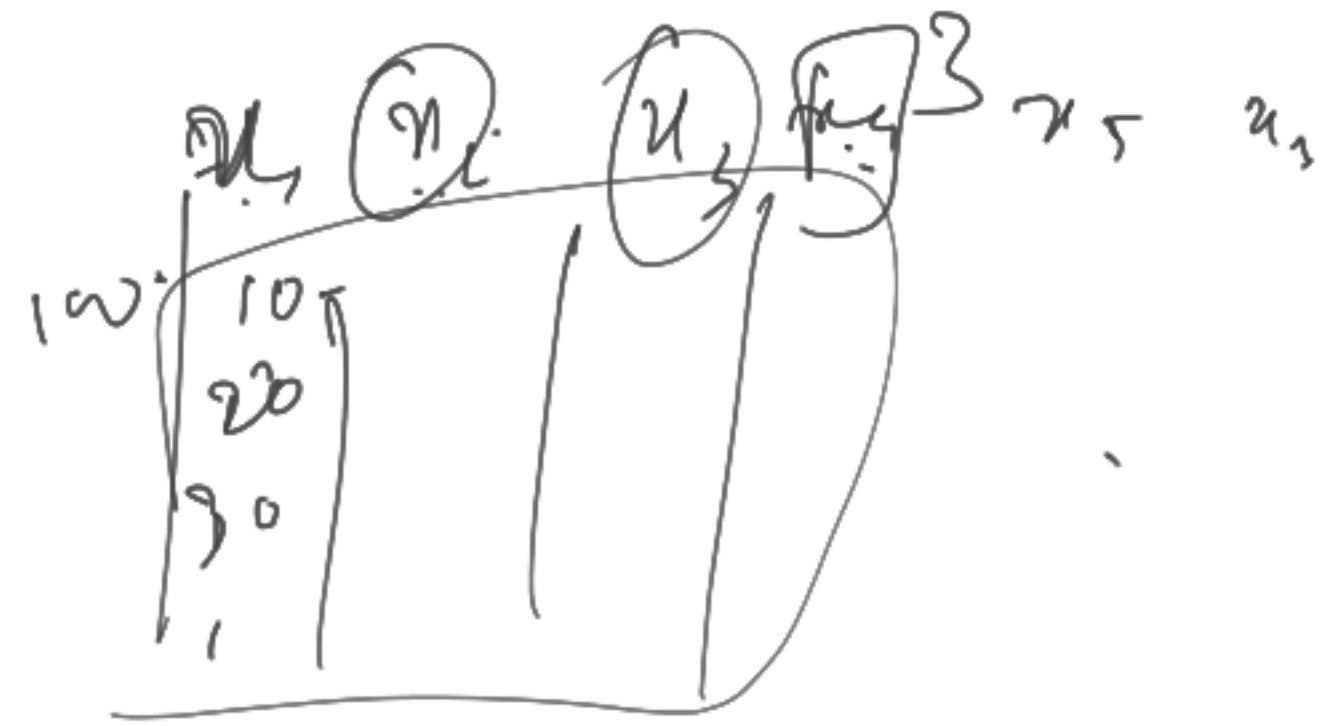
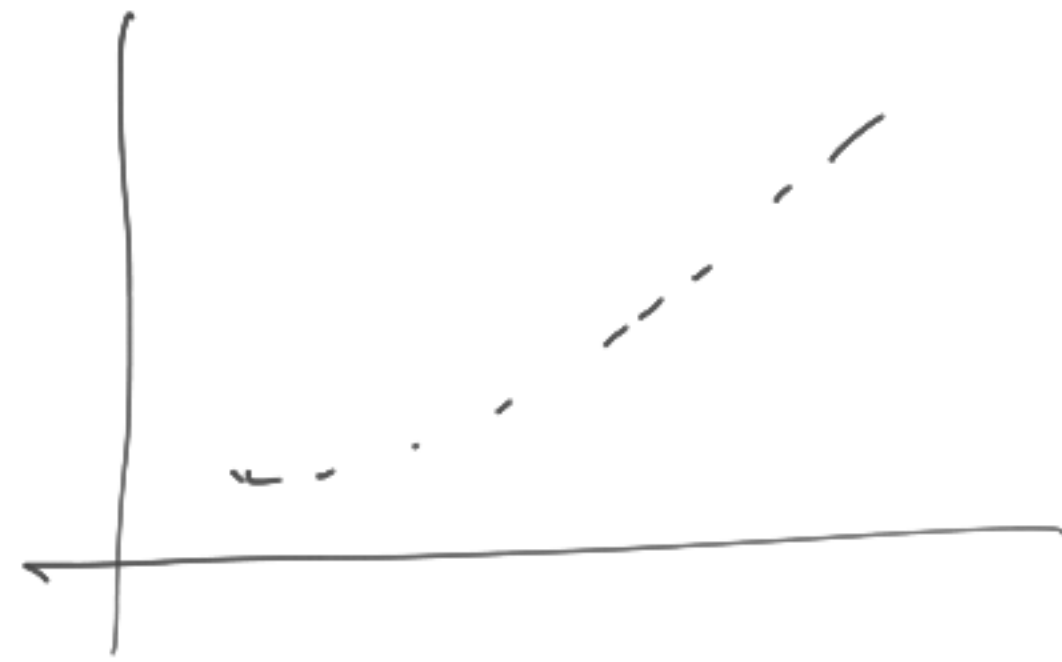
Simpl, multipl, polynomial \Rightarrow degree 2 3 4 5



$$\begin{array}{l} x_1^0 \rightarrow 1 \\ x_1^1 \rightarrow x_1 \\ x_1^2 \end{array}$$

3.

$$1 \times 3 \times 6 = \boxed{18} \quad 18 \quad 3^2$$



| a | b | c |
|----|-------------|-------------|
| 10 | b^0 b^1 | b^2 b^3 |
| 15 | | |
| 20 | | |
| 25 | | |

degree = 3

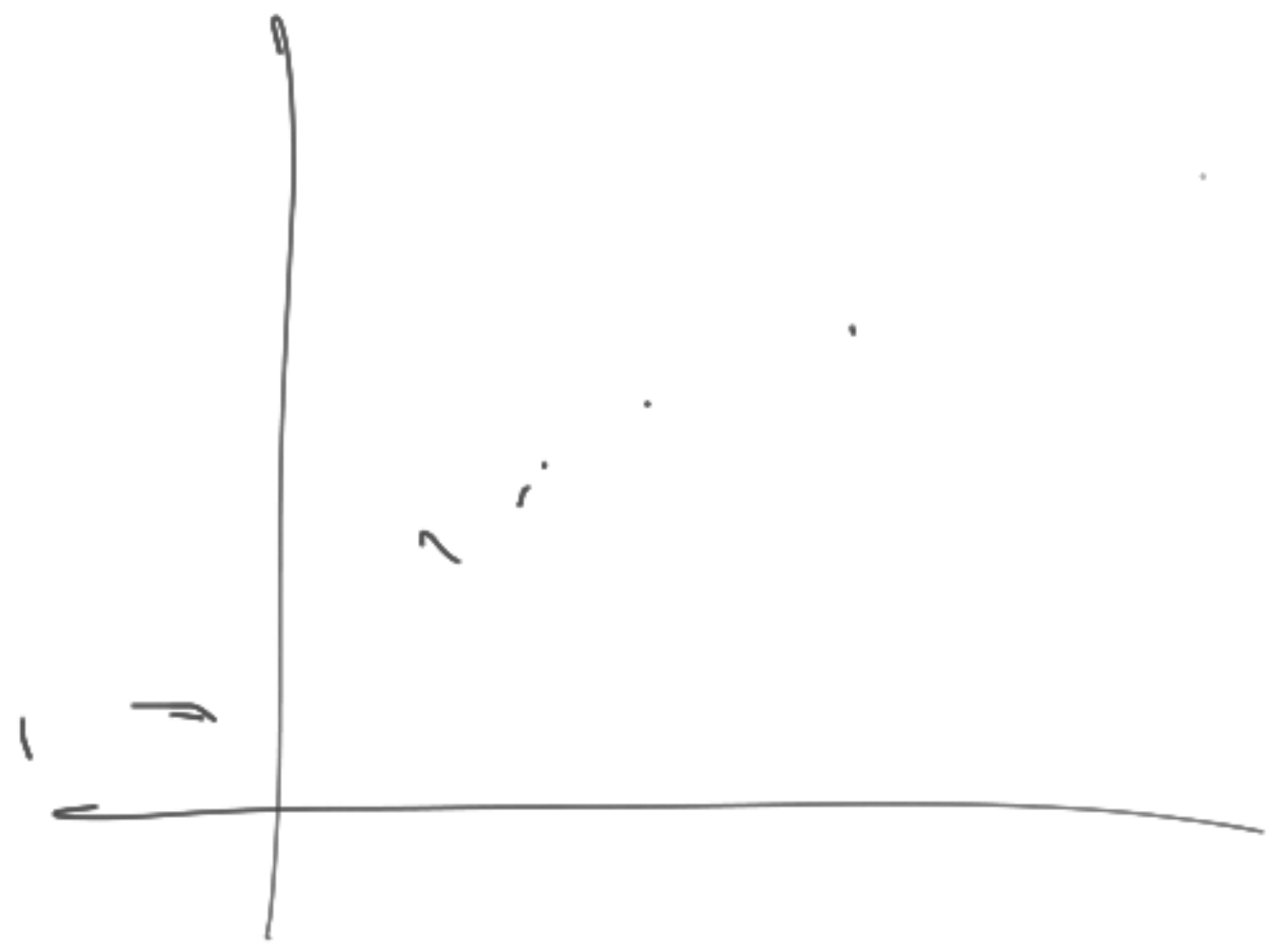
$$ax^3 + bx^2 + cx + d$$

$$c^0 c^1 c^2 c^3 = 10 = 1$$

$$aa^0 = 1$$

100' 100
1000 - 1000

| a^0 | a^1 | a^2 | a^3 |
|-------|-------|-------|-------|
| 1 | 10 | 100 | 1000 |
| 1 | 15 | 225 | — |
| 1 | 20 | 400 | — |
| 1 | 25 | 625 | — |



One hot encoding OHE

| | blue | green | red |
|-------|------|-------|-----|
| blue | 1 | 0 | 0 |
| green | 0 | 1 | 0 |
| blue | 1 | 0 | 0 |
| red | 0 | 0 | 1 |
| green | 0 | 1 | 0 |
| red | 0 | 0 | 1 |
| blue | 1 | 0 | 0 |

↓ unique value
 $n \Rightarrow \boxed{n-1}$

Color ↓
 0 : 1 : 2

blue
 green
 blue

red
 green
 blue

blue →

| | | |
|---|---|---|
| 1 | 0 | 0 |
| 0 | 0 | 1 |
| 0 | 1 | 0 |

blue =

| | | |
|---|---|---|
| 1 | 0 | 0 |
| 0 | 0 | 1 |
| 0 | 1 | 0 |

red :

| | | |
|---|---|---|
| 0 | 0 | 1 |
| 0 | 1 | 0 |

green :

| | | |
|---|---|---|
| 0 | 1 | 0 |
|---|---|---|

| | Red | blue | green | yellow | |
|----------|-----|------|-------|--------|---|
| R | 1 | 0 | 0 | 0 | 1 |
| B | 0 | 1 | 0 | 0 | 1 |
| <u>Y</u> | 0 | 0 | 0 | 1 | 1 |
| R | 1 | 0 | 0 | 0 | 1 |
| G | 0 | 0 | 1 | 0 | 1 |
| B | 0 | 1 | 0 | 0 | |
| R | 1 | 0 | 0 | 0 | |
| Y | 0 | 0 | 0 | 1 | |

100

| | | | | |
|---|---|---|---|-----------------|
| 1 | 0 | 0 | 0 | Red |
| 0 | 1 | 0 | 0 | Y-Blue |
| 0 | 0 | 0 | 1 | green yellow |
| 1 | 0 | 0 | 0 | |
| 0 | 0 | 1 | 0 | |
| 0 | 1 | 0 | 0 | |
| 1 | 0 | 0 | 0 | |