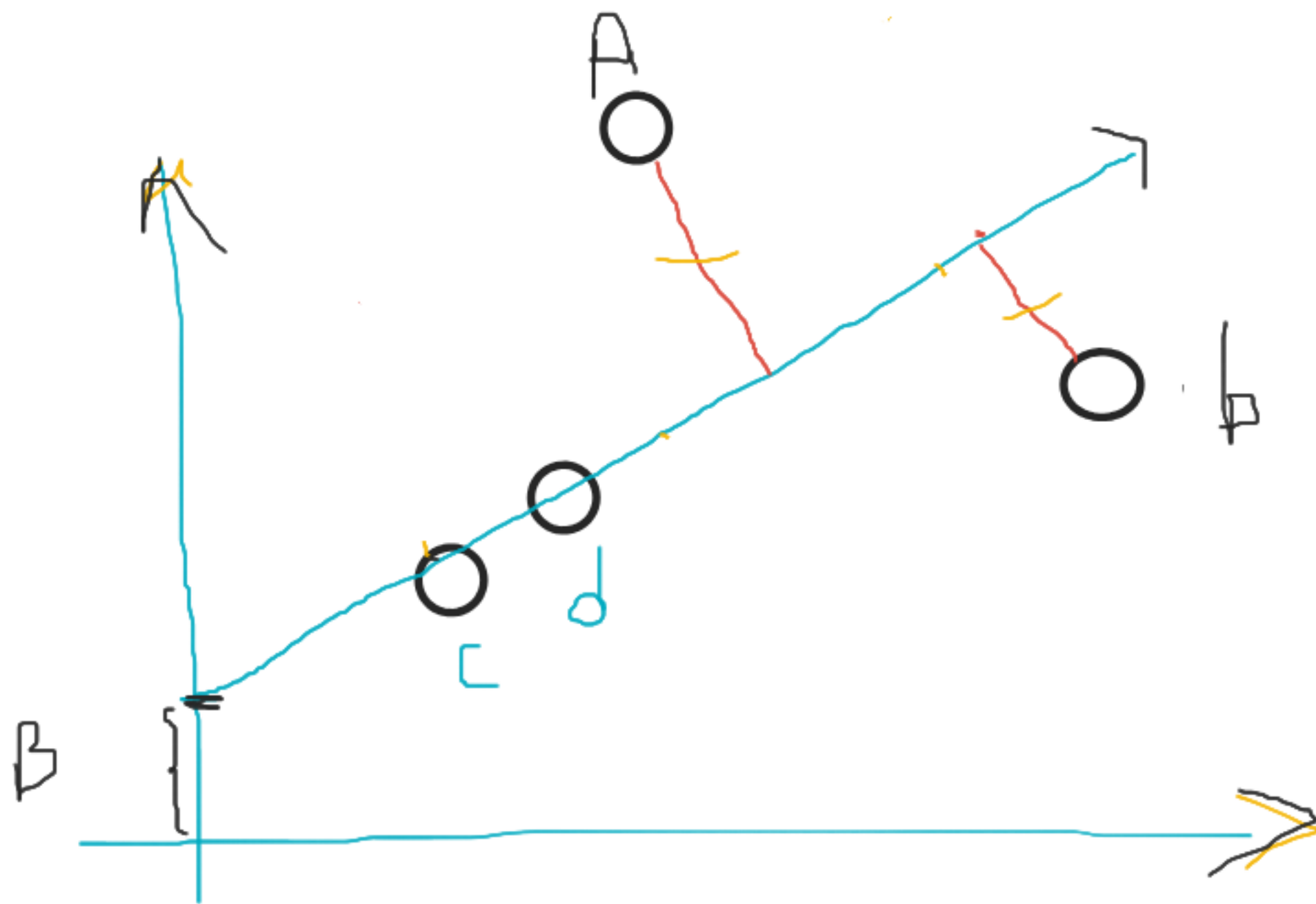


Linear Regression

$$y = mX + B$$

$$m = \frac{\text{sum of product of deviation}(x \& y)}{\text{sum of square of deviation of } X}$$

$$B = \text{mean}(Y) - [m * \text{mean}(x)]$$



MEAN ABSOLUTE ERROR

MEAN

ABSOLUTE

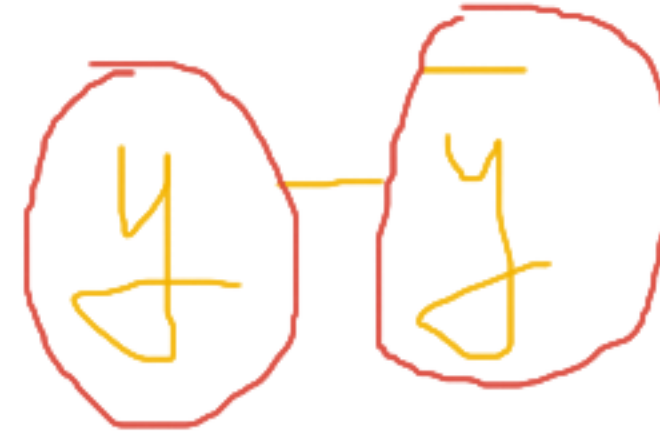
ERROR

X	y	\bar{y}	$ y - \bar{y} $
1	2	3	1
2	4	5	1
3	6	7	1
4	8	9	1

$$n = 4$$

$$4$$

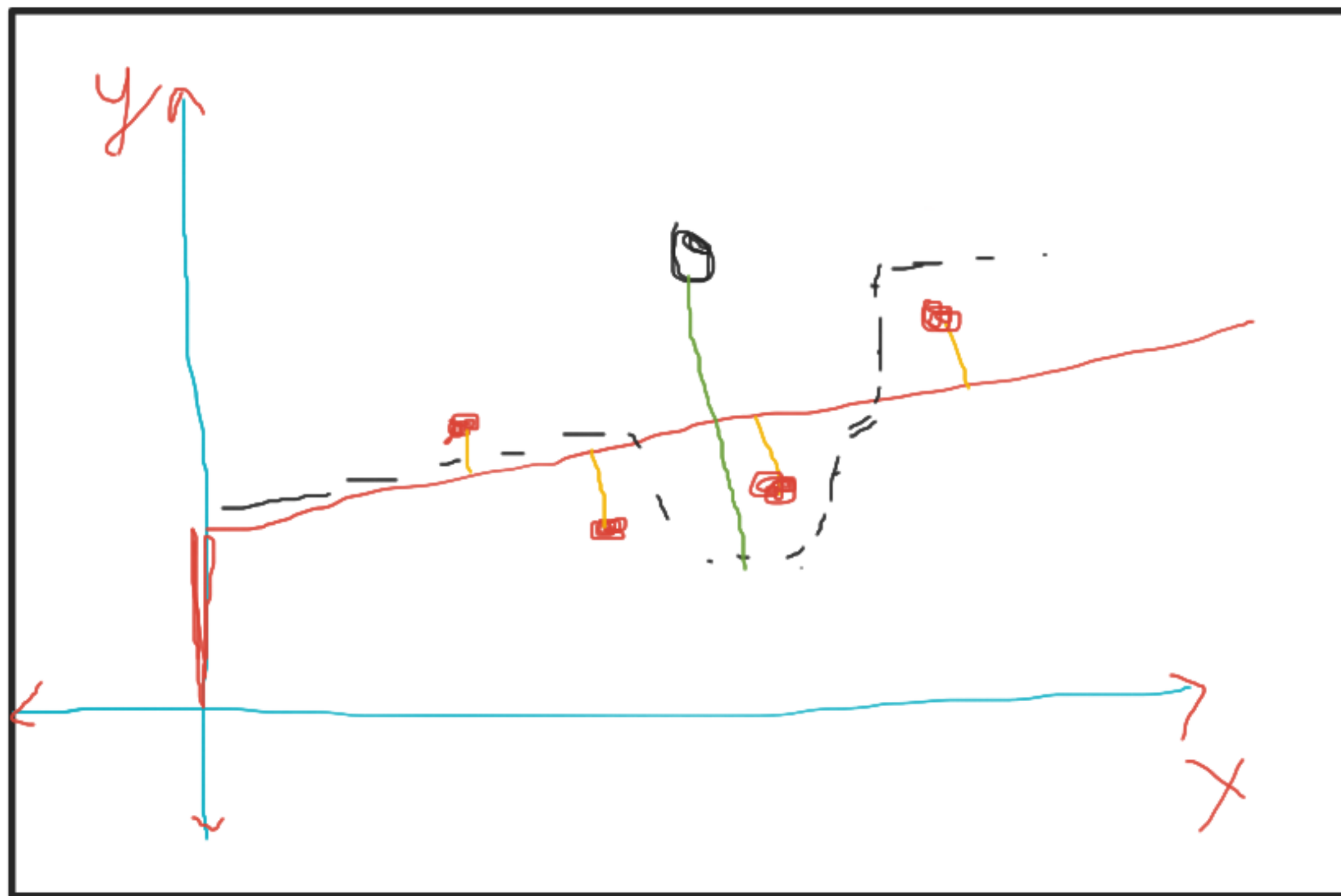
$$\frac{1}{4} \times 4 = 1$$



ACTUAL VALUE

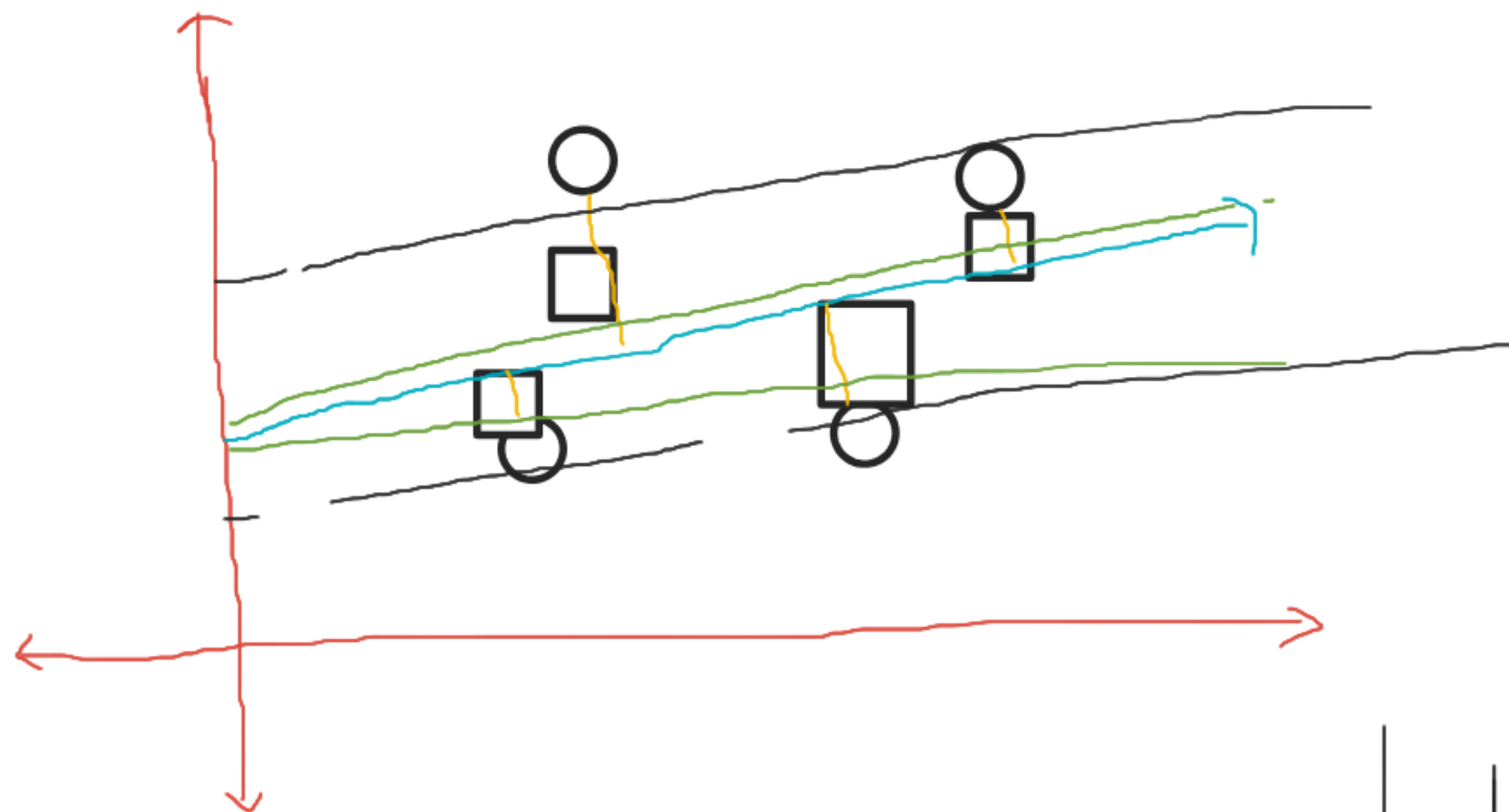
PREDICTED VALUE

$$\frac{1}{n} \sum_{i=1}^n |y_i - \bar{y}|$$



MEAN SQUARED ERROR

LESSER THE MSE \rightarrow SMALLER IS THE ERROR \rightarrow BETTER MODEL



log

1 → 5
2 → 4
10



MSE

$$\frac{1}{n} \sum (y - \bar{y})^2$$

x	y	\bar{y}	$y - \bar{y}$
1	5	2	3
2	8	4	4
3	4	1	3
4	2	6	-4

$$(y - \bar{y})^2$$

$$9$$

$$16$$

$$9$$

$$16$$

$$\frac{14}{4} = 3.5$$

$$n = 4$$

$$\sum = 50$$

$$0 < x < n$$

$$\frac{1}{4} \times 50 = 12.5$$

