⇒ Manual calculation of Linear Regression

Weight(x)	price(y)
2	35
4	60
5	20
3	50
6	50
5	55
7	60

Here, $n = 7$

$$\bar{x} = \frac{2+4+5+3+6+5+7}{7} = 4.5714$$

$$\bar{y} = \frac{35+60+20+50+50+55+60}{7} = 47.1429$$

$$m = \frac{\Sigma (x-\bar{x})(y-\bar{y})}{\Sigma (x-\bar{x})^2}$$

$$= 2.6$$

$$y = mx + c$$

$$c = \bar{y} - m\bar{x}$$

$$= 35.23$$

$\therefore y = mx_0 + c$

$= (2.6 \times 2) + 35.23 = 40.43$

$\therefore$ Residual = Actual price − predicted price

$= 35 - 40.43$

$= -5.43$

With the same process,

weight(x)	price (y)	predicted price	Residual
2	35	40.43	-5.43
4	60	45.63	14.37
5	20	48.23	-28.23
3	50	43.03	6.97
6	50	50.83	-0.83
5	55	48.23	6.77
7	60	53.43	6.57

$$MAE = \frac{1}{N}\sum_{i=1}^{N}|(y_i - \hat{y}_i)| = 9.8814$$

$$MSE = \frac{1}{N}\sum_{i=1}^{N}(y_i - \hat{y}_i)^2 = 167.3118$$