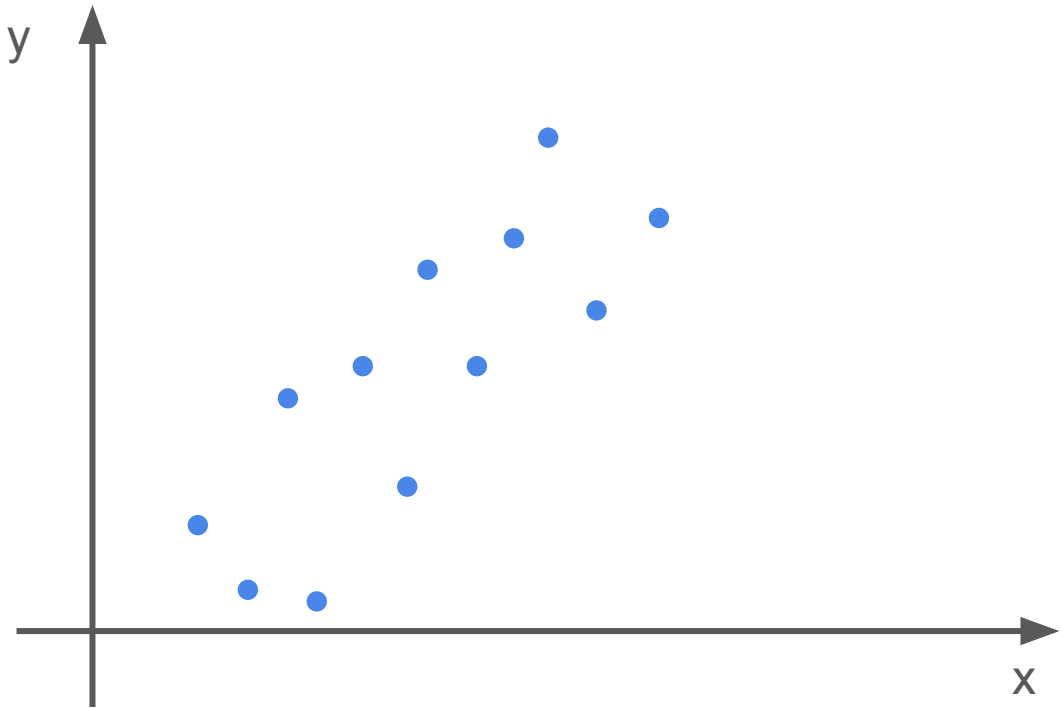
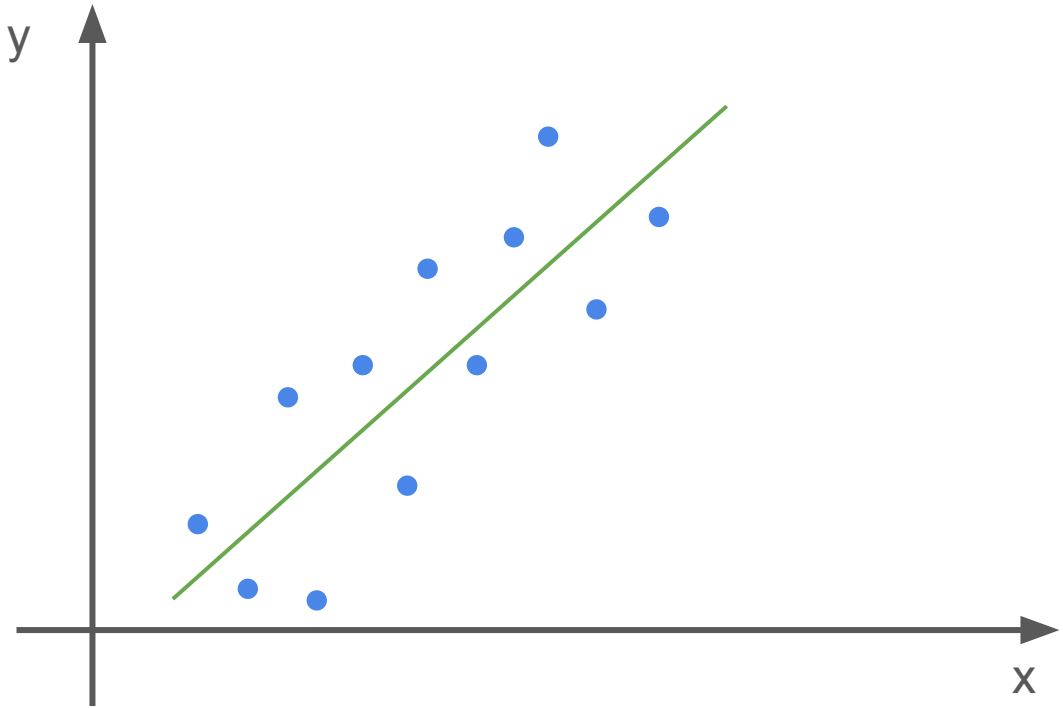
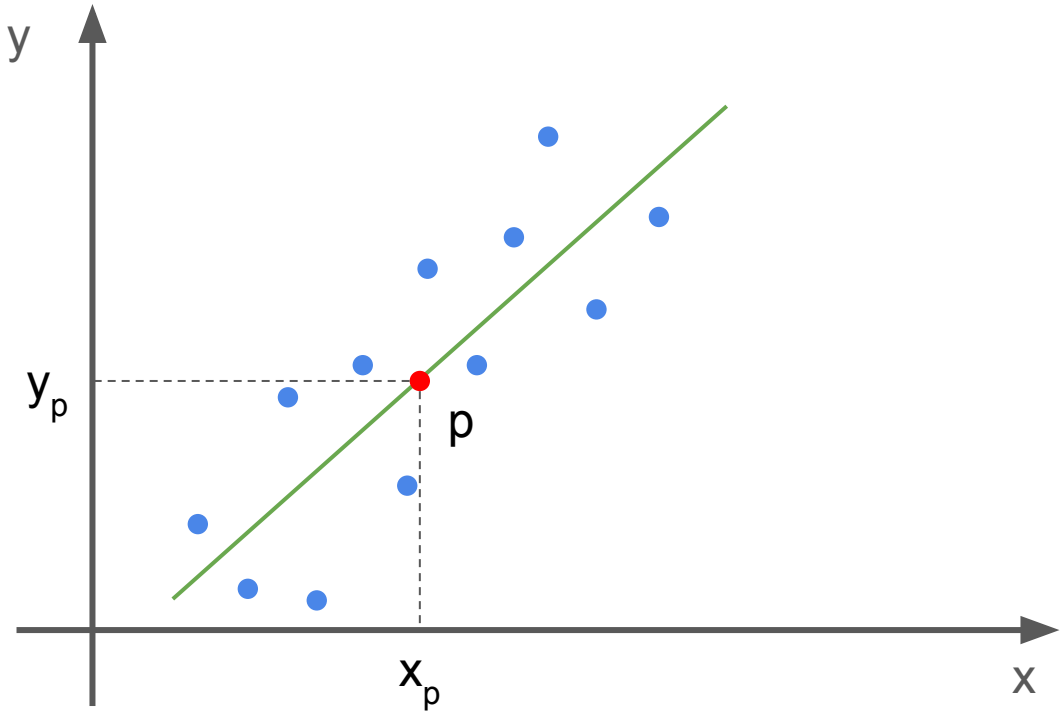
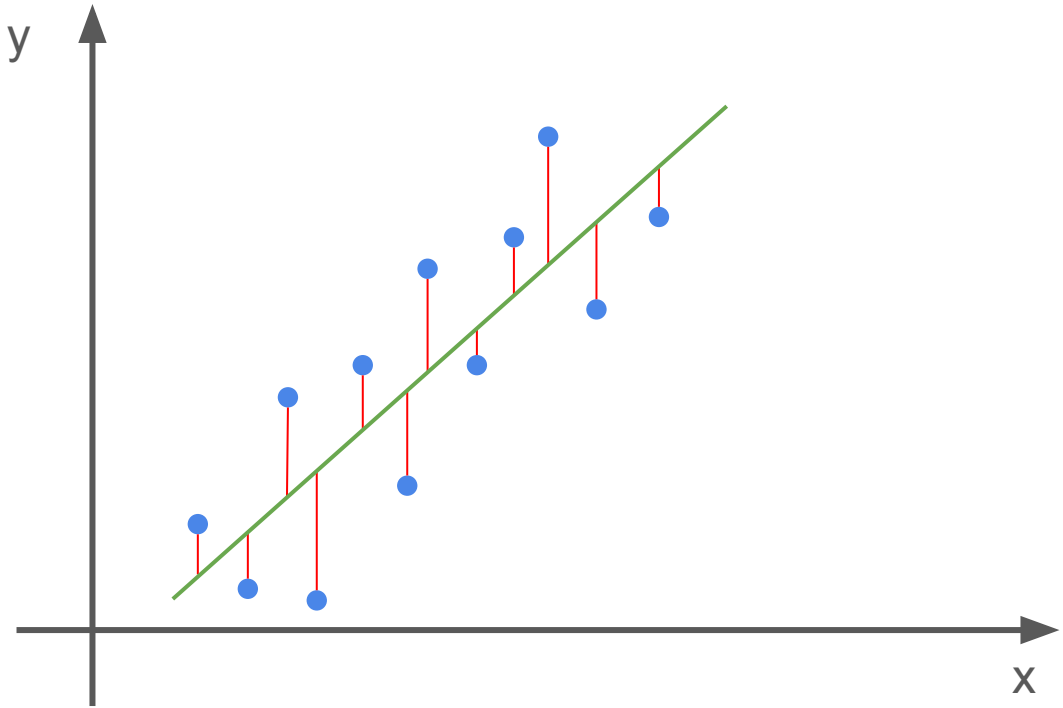
Linear regression

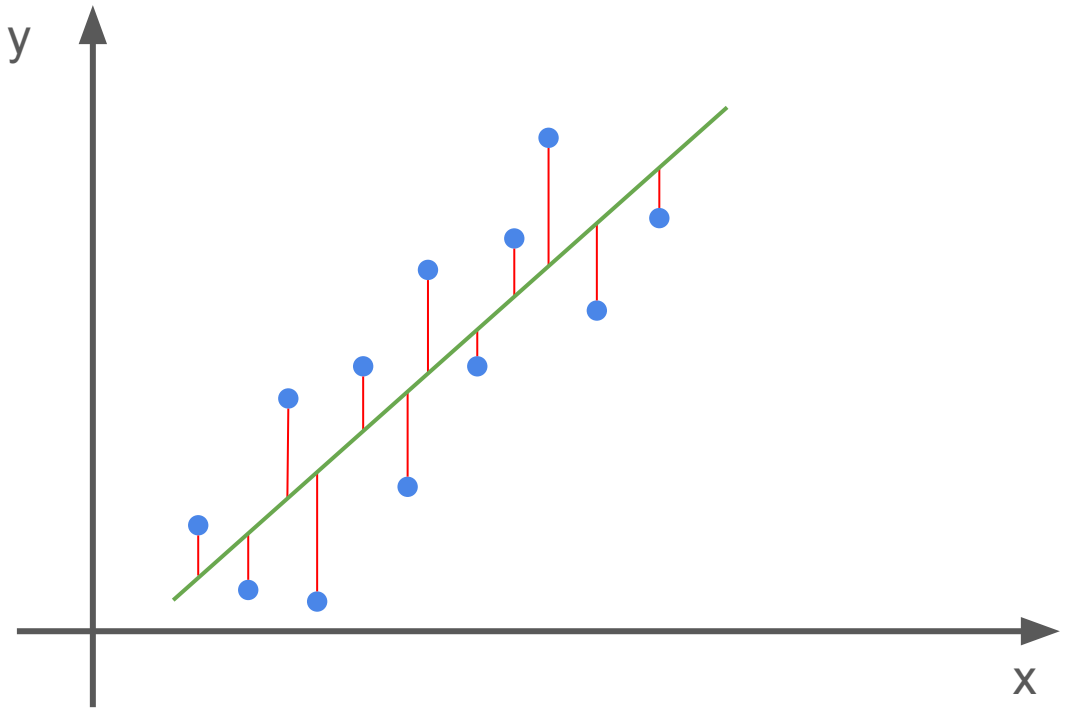

y
x


y
x

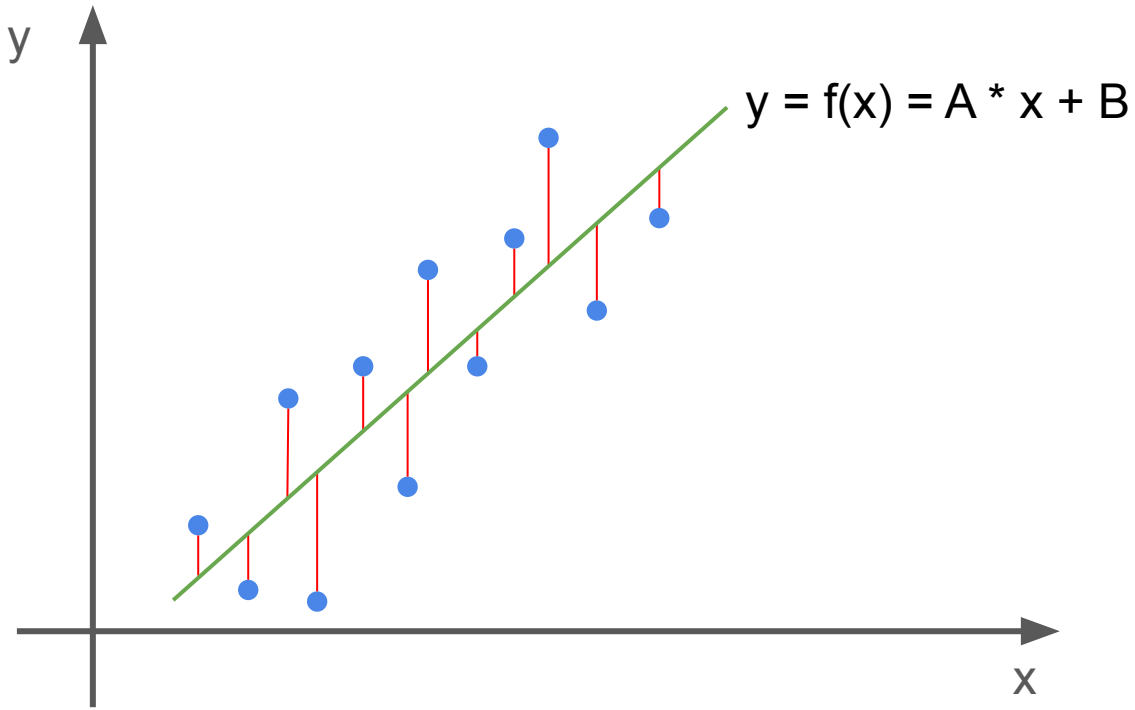

y
y_p
p
x_p
x


y
x

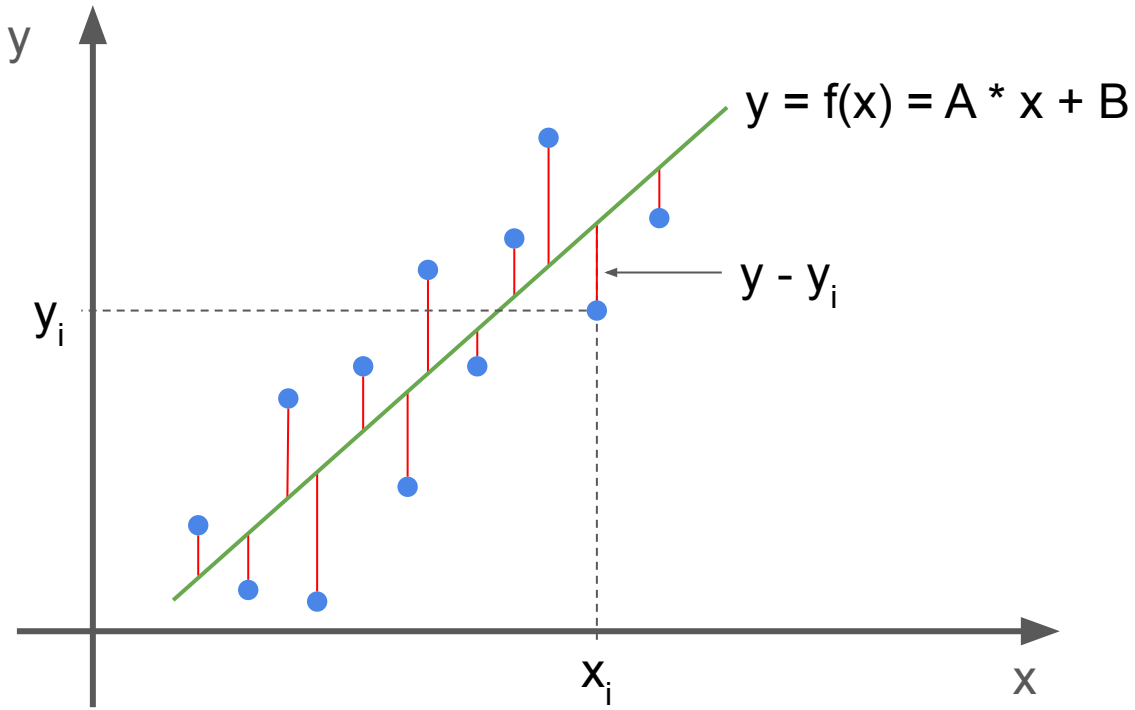
i:	y:	x:
1	12.02	8.15
2	7.08	12.73
3	14.59	15.64
4	16.19	17.08
5	21.23	18.34
…	…	…
n	43.02	29.73



i:	y:	x:
1	12.02	8.15
2	7.08	12.73
3	14.59	15.64
4	16.19	17.08
5	21.23	18.34
…	…	…
n	43.02	29.73



i:	y:	x:
1	12.02	8.15
2	7.08	12.73
3	14.59	15.64
4	16.19	17.08
5	21.23	18.34
…	…	…
n	43.02	29.73



i:	y:	x:
1	12.02	8.15
2	7.08	12.73
3	14.59	15.64
4	16.19	17.08
5	21.23	18.34
…	…	…
n	43.02	29.73

$$y = f(x) = A * x + B$$

$$S(A, B) = \Sigma_i (f(x_i) - y_i)^2$$

$$S(A, B) = \Sigma_i (A*x_i + B - y_i)^2$$

S(A, B) is the smallest, for A i B:

$$dS/dA = 0$$
$$dS/dB = 0$$

i:	y:	x:
1	12.02	8.15
2	7.08	12.73
3	14.59	15.64
4	16.19	17.08
5	21.23	18.34
…	…	…
n	43.02	29.73

$$A = \frac{n \cdot \Sigma_{i=1}^{n}(x_i \cdot y_i) - \Sigma_{i=1}^{n} x_i \cdot \Sigma_{i=1}^{n} y_i}{n \cdot \Sigma_{i=1}^{n} x_i^2 - \left(\Sigma_{i=1}^{n} x_i\right)^2}$$

$$B = \frac{\Sigma_{i=1}^{n} y_i - A \cdot \Sigma_{i=1}^{n} x_i}{n}$$

$$f(x) = A * x + B$$

$$f(x, y) = A * x + B * y + C$$

$$f(x, y, z) = A * x + B * y + C * z + D$$