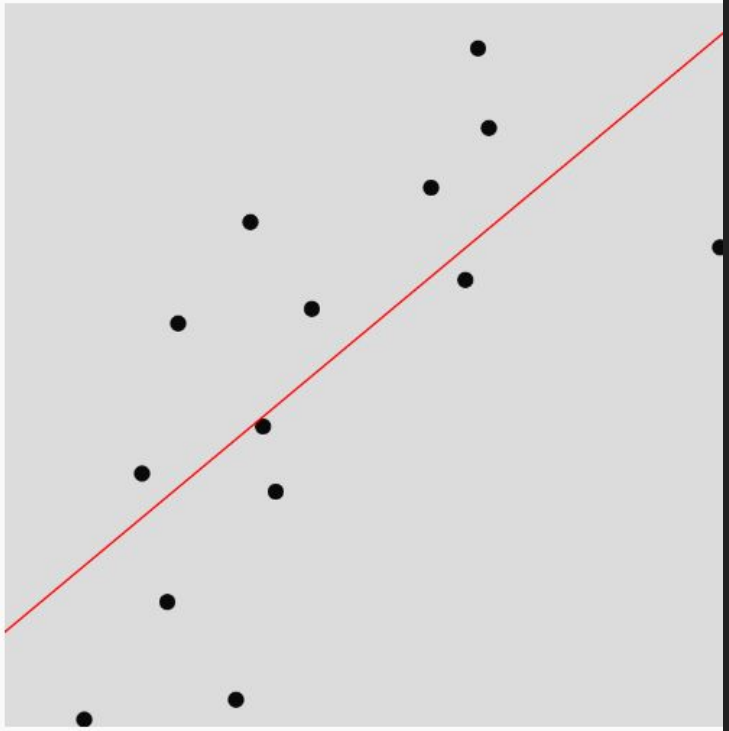
Linear Regression

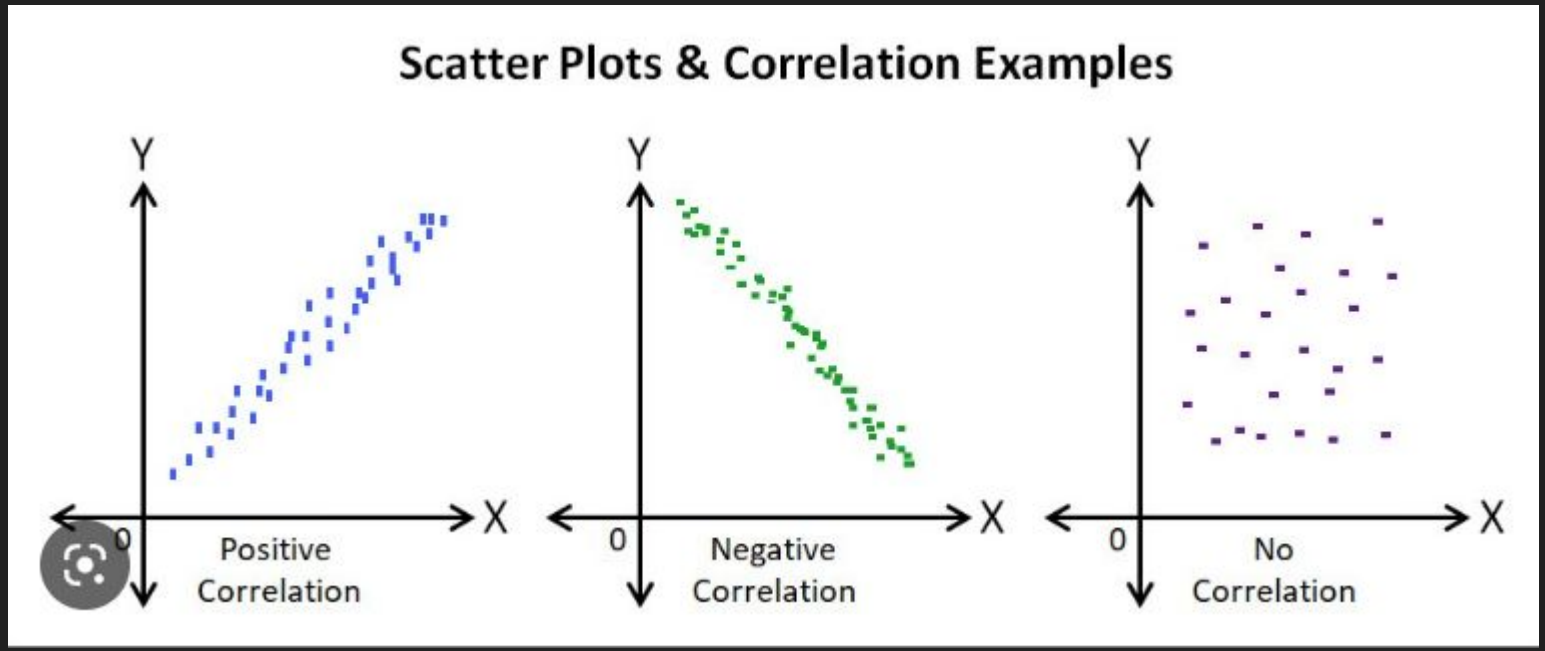
lesson 7

Try out the linear regression program.

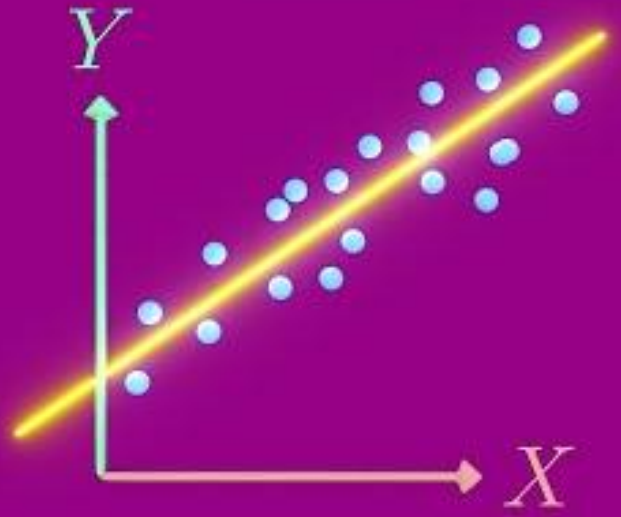
```
var data = []

function setup() {
 createCanvas(400, 400);
 background(51);


function mousePressed(){
 var x = map (mouseX, 0, width, 0, 1);
 var y = map (mouseY, 0, height, 1, 0);
 var point = createVector(x, y);
 data.push(point);


function draw() {
 background(220);
 for(var i =0; i<data.length; i++){
   var x = map(data[i].x, 0, 1, 0, width);
   var y = map(data[i].y, 0,1,height, 0);
   fill(10);
```

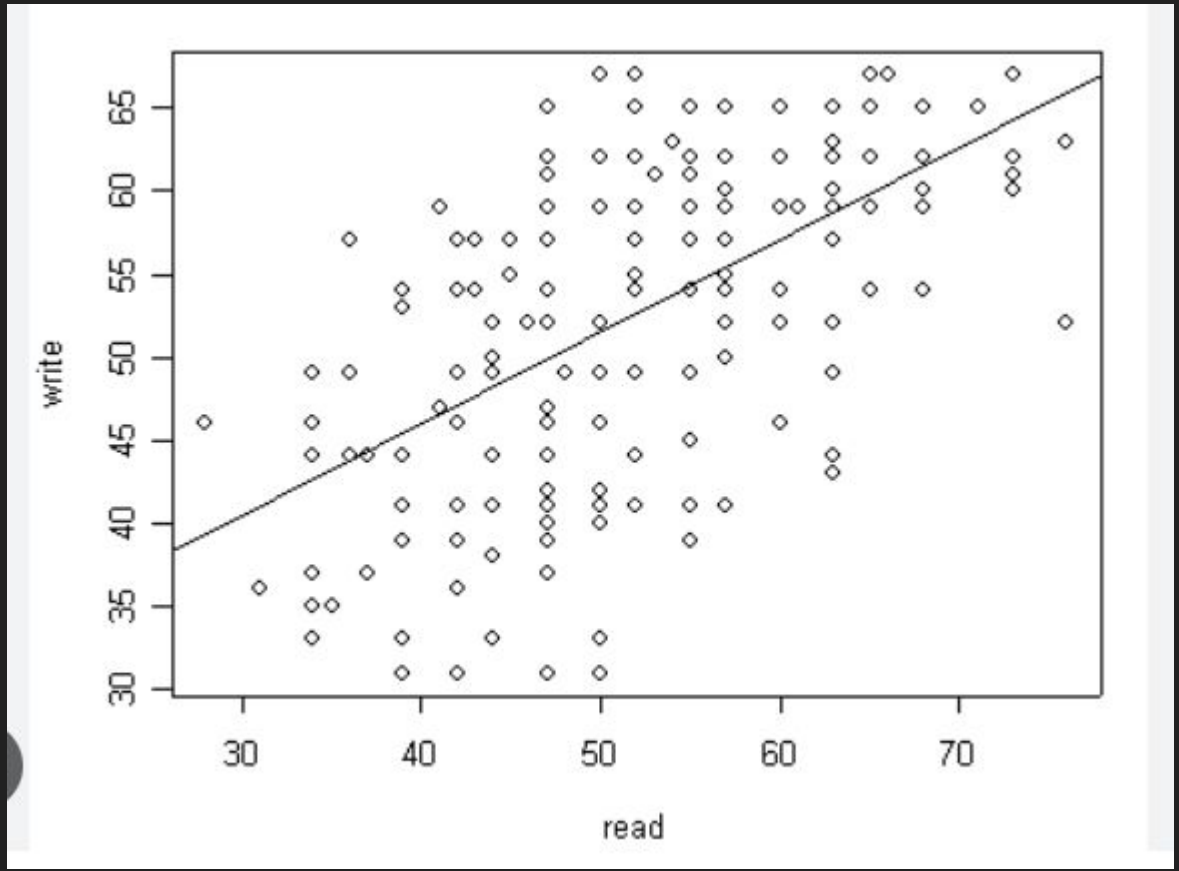


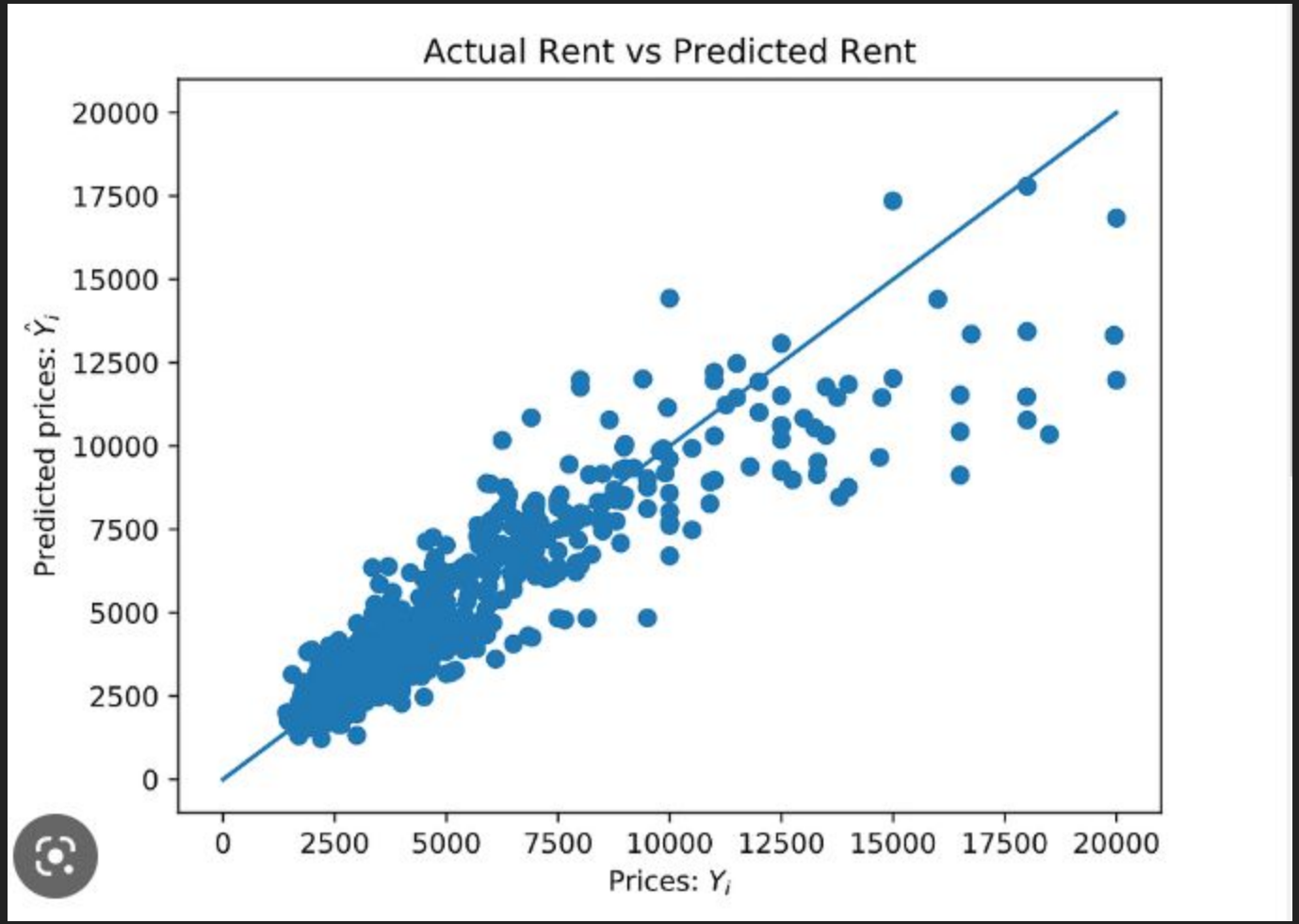
Can you console.log the equation for the line?


Scatter Plots & Correlation Examples
Y
X
0
Positive
Correlation
Y
X
0
Negative
Correlation
Y
X
0
No
Correlation

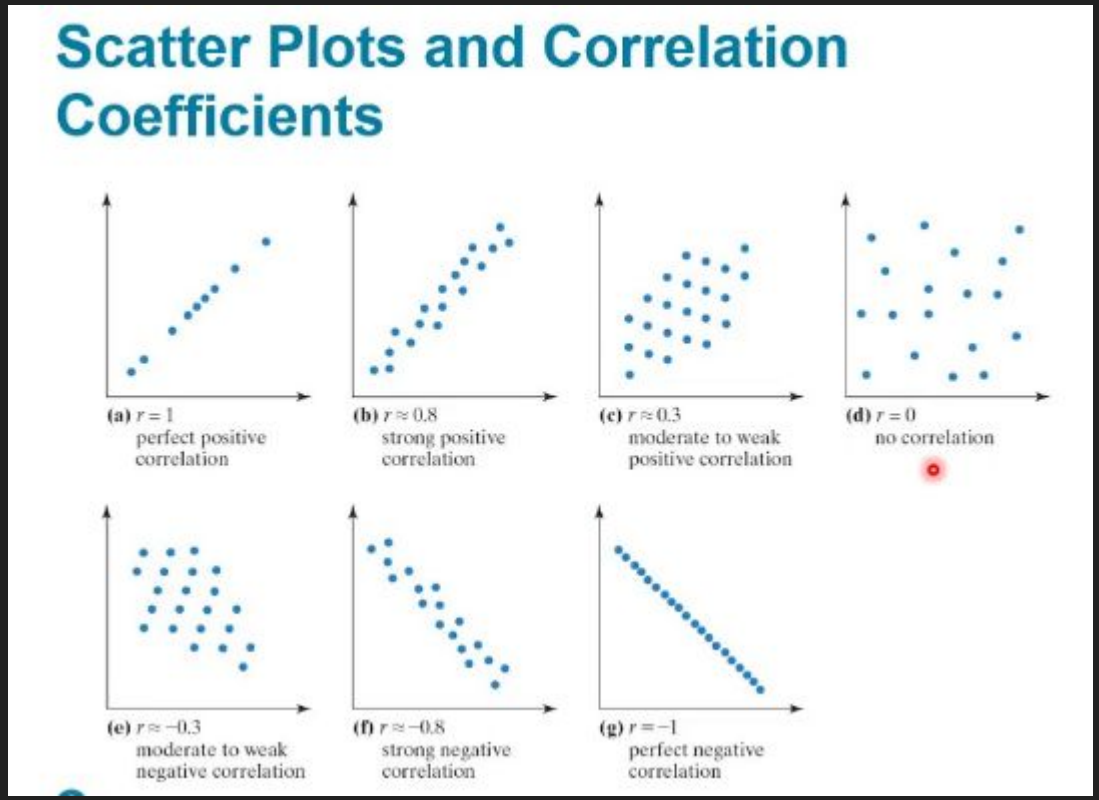
Linear Regression




write
30
35
40
45
50
55
60
65
30
40
50
60
70
read


Actual Rent vs Predicted Rent
Predicted prices: $\hat{Y}_i$
Prices: Y_i
0
2500
5000
7500
10000
12500
15000
17500
20000

Strong vs Weak Correlation



	A	B	C	D
1	Name	Body_kg	Brain_g	
2	Mountain beaver	1.35	8.1	
3	Cow	465	423	
4	Grey wolf	36.33	119.5	
5	Goat	27.66	115	
6	Guinea pig	1.04	5.5	
7	Asian elephant	2547	4603	
8	Donkey	187.1	419	
9	Horse	521	655	
10	Potar monkey	10	115	
11	Cat	3.3	25.6	
12	Giraffe	529	680	
13	Gorilla	207	406	
14	Human	62	1320	
15	Rhesus monkey	6.8	179	
16	Kangaroo	35	56	
17	Golden hamster	0.12	1	
18	Mouse	0.023	0.4	
19	Rabbit	2.5	12.1	

sketch.js Saved: just now Preview

```
let data;

function preload(){
  data = loadTable("animalBrainBody.csv","csv","header")

}

function setup() {
  createCanvas(400, 450);
  background(220);
  let numRows = data.getRowCount();
  let name = data.getColumn(0)
  let body = data.getColumn(1)
  let brain = data.getColumn(2)
  console.log(brain)
  textSize(28)
  text("Body/Brain size of animals",50,50)

 stroke("blue")
  findLinearReg()
```

Console Clear

▶ (25) ["8.1", "423", "119.5", "115", "5.5", "419", "655", "115", "2