

Q1:

a)

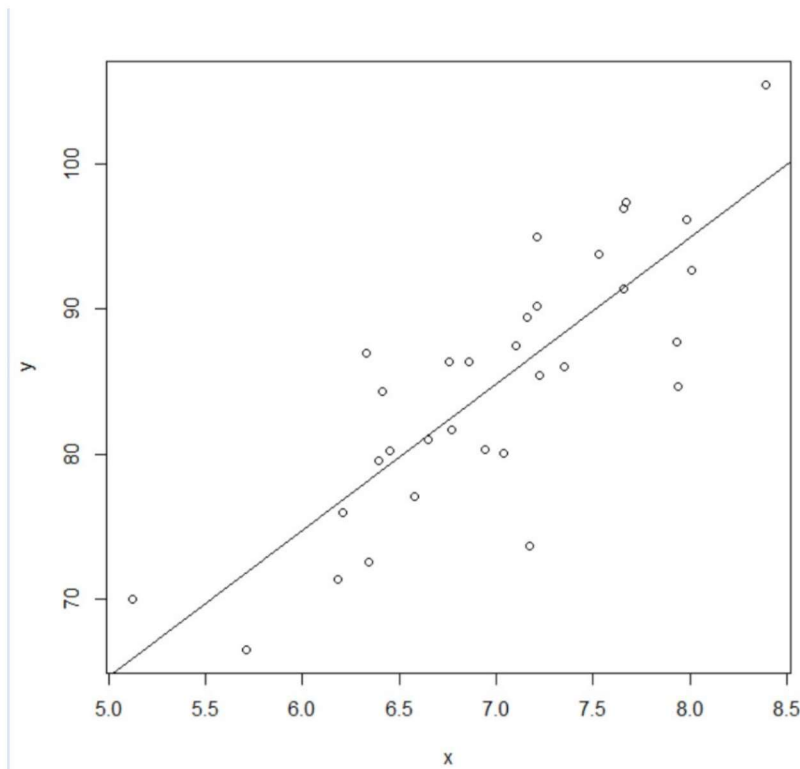
$$m = \frac{N \sum (xy) - \sum x \sum y}{N (\sum x^2) - (\sum x)^2}$$
$$= \frac{250 \times 125471.10 - 6322.28 \times 4757.90}{250 \times 162674.18 - (6322.28)^2}$$
$$\approx 1.85$$
$$b = \frac{\sum y - m \sum x}{N} = \frac{4757.90 - 1.85 \times 6322.28}{250} = -27.75$$

b)

$$\hat{y} = 1.85x - 27.75$$
$$\hat{y}(30) = 1.85 \times 30 - 27.75 = 27.75$$

Q2:

a)



b)

```
> modell
```

```
Call:
```

```
lm(formula = y ~ x)
```

```
Coefficients:
```

```
(Intercept)
```

```
14.20
```

```
x
```

```
10.09
```

c)

```
> predict(modell, data.frame(x=7.5))
```

```
1
```

```
89.88357
```

d)

```
-10.09
```

e)

```
10=10.09*x
```

```
->
```

```
X=10/10.09
```

Q3:

a)

```

[1] 1 2 3 4 5 6 7 8 9 10 11 12 13
> modell=lm(y~x)
> modell

Call:
lm(formula = y ~ x)

Coefficients:
(Intercept)          x
    0.6578         0.1781

```

$$Y=0.1781 \cdot x + 0.6578$$

b)

Residual standard error: 0.2873 on 9 degrees of freedom

c)

```

> predict(modell, data.frame(x=15), interval="conf", level=0.9)
      fit      lwr      upr
1 3.328639 3.125933 3.531346

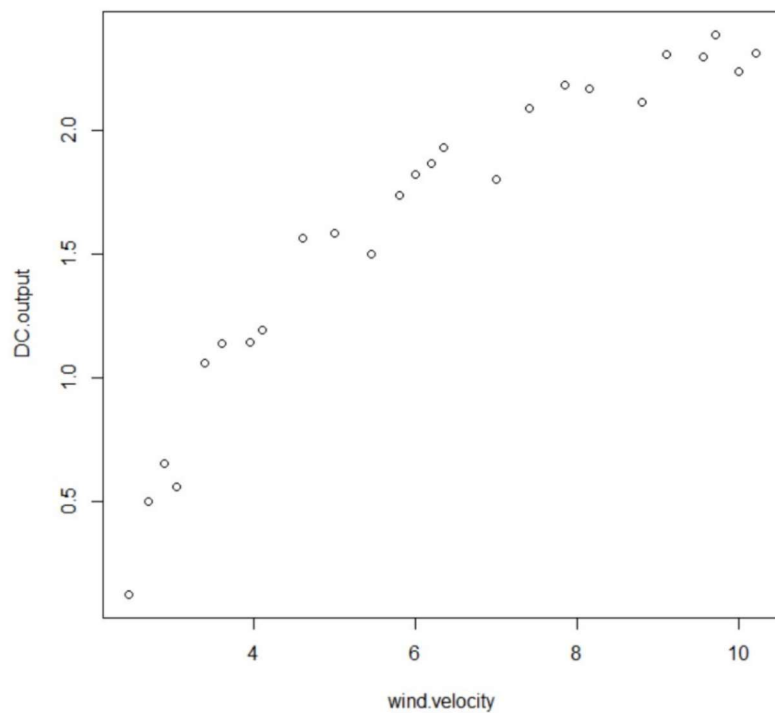
```

d)

0.534169

Q4:

a)



b)

```
> modell=lm(DC.output~wind.velocity)
> modell

Call:
lm(formula = DC.output ~ wind.velocity)

Coefficients:
(Intercept)  wind.velocity
      0.1309         0.2411
```

c)

```
> confint(modell, level=0.9)
              5 %      95 %
(Intercept) -0.08505447 0.3468047
wind.velocity 0.20850099 0.2737967
> |
```

