

HW5

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March 26, 2018

1)

2)

3)

First we must set up the data. It could have also been read in through a file, however this makes it easier to work from 2 different pc's on the same project.

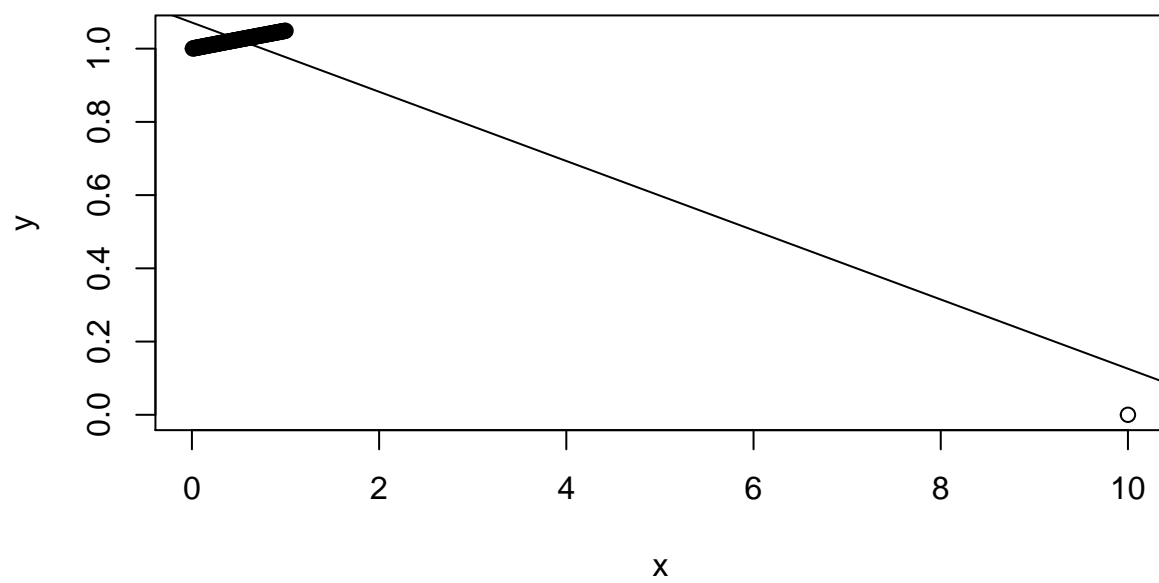
```
set.seed(123)
x0=1:100/100
x=c(x0,10)
y0=sqrt(1+.1*x0+rnorm(100,sd=.0001))
y=c(y0,0)
```

a)

Below is a scatterplot of the data, with the line representing our model going through it. As you can see, the outlier at $x = 10$ makes the model seemingly strange for the rest of the data. We will address this in later parts of the problem.

```
model3 = lm(y~x)
plot(x,y, main = "scatterplot for #3")
abline(model3$coef)
```

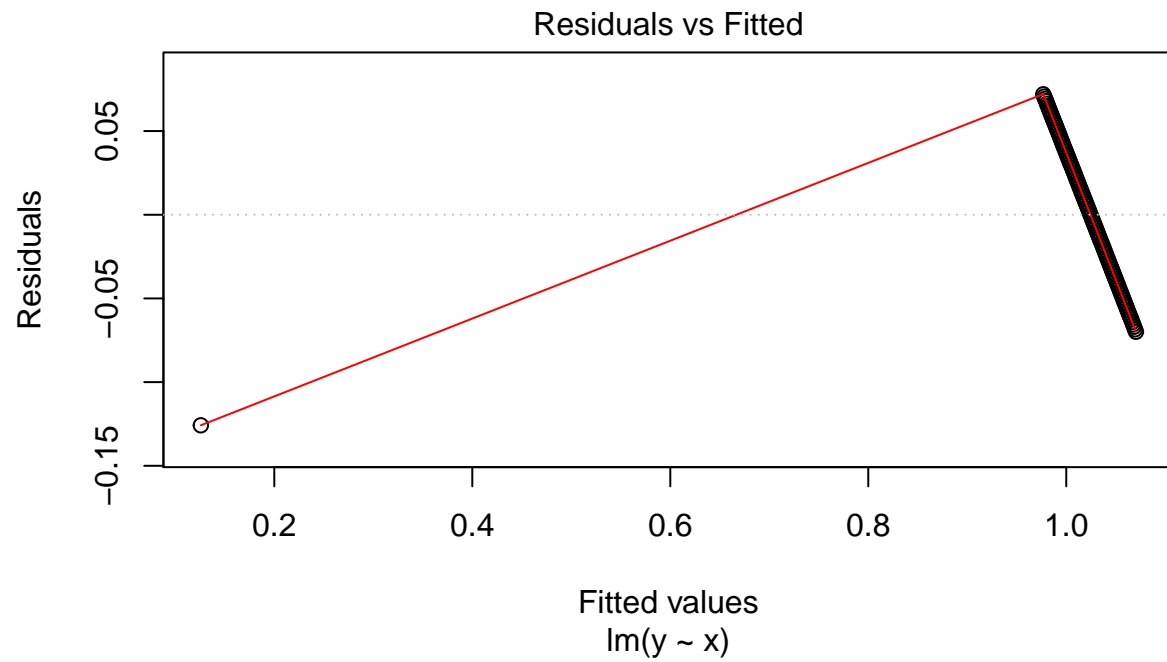
scatterplot for #3



b)

Below is the residual plot.

```
plot(model13, which = 1, labels.id = '')
```

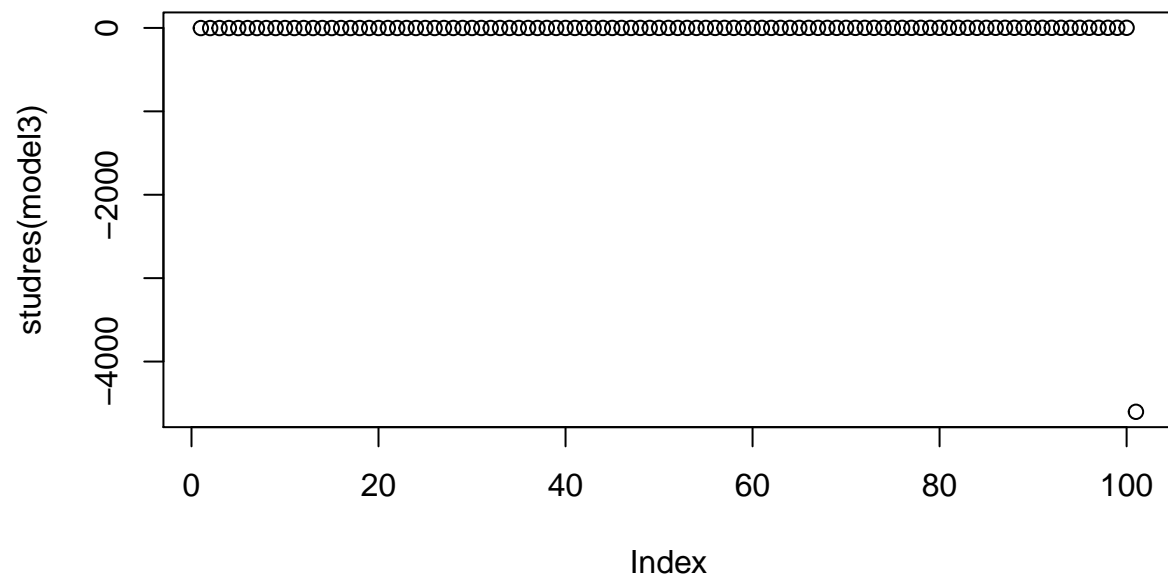


Below is the studentized residual plot.

```
require(MASS)
```

```
## Loading required package: MASS
```

```
plot(studres(model3))
```



Below is the externally studentized residual plot.

c)

d)

e)