

Quiz2

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x	y
22	497
26	541
27	556
33	576
29	578
29	607
34	662
30	739
40	805

a. Look at a scatterplot of the data. Does it appear that a simple linear model is appropriate?

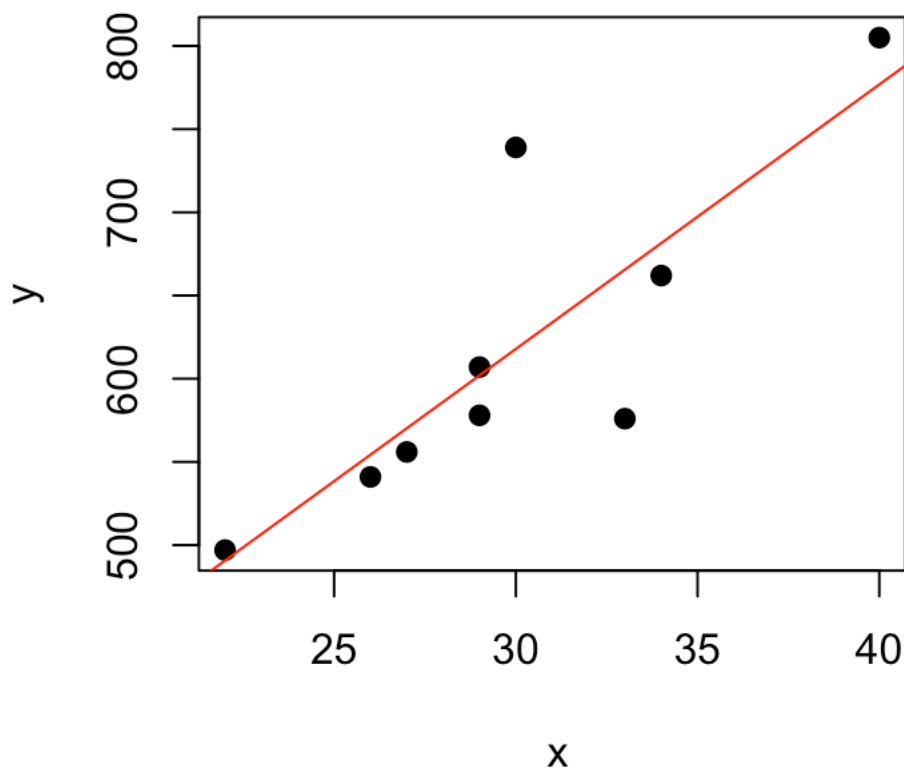
Yes.

We can also check the correlation, to check if the two variables are linearly associated.

Correlation is the normalized covariance, we can just use R's `cor()` function which does it for us:

```
## [1] 0.8287317
```

Quiz 2



b. Which variable, X or Y, is the “response” variable in this problem? Which is the “explanatory” or “predictor” variable?

The response variable is the dependent variable, which is Y in this problem. X is the predictor variable or explanatory variable. X is the independent variable.

c. What is the equation of the regression line? (Round the slope and y-intercept to one decimal place.)

The estimated regression line equation is: $y = 141.08 + 15.89x$

```
##
## Call:
## lm(formula = y ~ x)
##
## Coefficients:
## (Intercept)          x
##      141.08      15.89
```

```
##
## Call:
## lm(formula = y ~ x)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -89.569 -19.463 -13.315   6.259 121.111
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   141.083    123.312   1.144  0.29019
## x              15.894     4.057   3.918  0.00576 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 59.62 on 7 degrees of freedom
## Multiple R-squared:  0.6868, Adjusted R-squared:  0.6421
## F-statistic: 15.35 on 1 and 7 DF, p-value: 0.005765
```

d. Use the regression line to predict the value of Y when X = 31.

```
## [1] 633.67
```