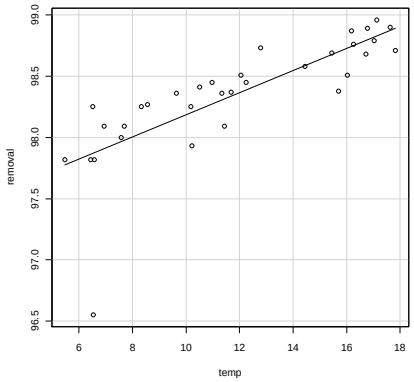
HW10

1. (HW9 question 3 continued) In biofiltration of wastewater, air discharged from a treatment facility is passed through a damp porous membrane that causes contaminants to dissolve in water and be transformed into harmless products. The accompanying data on x= inlet temperature (°C) and y= removal efficiency (%) was the basis for a scatter plot that appeared in the article "Treatment of Mixed Hydrogen Sulfide and Organic Vapors in a Rock Medium Biofilter"(Water Environment Research, 2001: 426–435). The scatter plot and the summary statistics are given below.



n=33
$\Sigma (x_i)=387$
$\Sigma (y_i)=3365$
$\Sigma (x_i-\bar{x})^2=514$
$\Sigma (y_i-\bar{y})^2=6.847$
$\Sigma ((x_i-\bar{x})(y_i-\bar{y}))=46.578$

A. Calculate the fitted regression equation.
B. Interpret the intercept in A.
C. Interpret the slope in B.
D. Obtain a prediction of removal efficiency when temperature=12.

2. **Chapter 12, Section 12.5, Exercise 58 parts a b c**
Use these summary statistics:
n=12
$\Sigma (x_i)=44,615$
$\Sigma (x_i)^2=170, 355,425$
$\Sigma (y_i)=3,860$
$\Sigma (y_i)^2=1,284,450$
$\Sigma (x_i y_i)=14,755,500$

- Do not forget to interpret the correlation in part (a). Qualify the strength of the linear relationship between x and y.
- For parts (b) and (c), just say if will increase, decrease, or remain the same. No need to explain.