Discussion Section 9 #1 4th 7

\[ \text{°F} = \frac{9}{5} \text{°C} + 32 \]  

\[ r = \frac{1}{n} \sum_{i=1}^{n} \left( \frac{x_i - \bar{x}}{s_x} \right) \left( \frac{y_i - \bar{y}}{s_y} \right) \]

\[ s_x^2 = \sqrt{\frac{1}{n} \sum_{i=1}^{n} (x_i - \bar{x})^2} \]

(And similarly for \( s_y^2 \))

Inferential Summary

unknown \( \beta \), 5% of \( \beta \), \( \beta \) = pop. corr. between temp. & oxygen

estimate \( \hat{\beta} \)

\[ V = -0.99 \]

\[ \text{SE}(V) = 0.0085 \]

\( \pm 1.96 \text{SE}(V) = (-1, 0.97) \)

for \( V \approx \) for 95% CI approx.
\[ y = \hat{\beta}_0 + \hat{\beta}_1 x \]

\[ \hat{\beta}_0 = 3.4714 + 2.23 \]

\[ \hat{\beta}_0 = 3.47 \div 3.5 \]

\[ \hat{\beta}_1 = -0.0877587 \]

\[ \hat{\beta}_1 = -0.088 \]

\[ SE(\hat{\beta}_0) = 0.060127 \]

\[ SE(\hat{\beta}_1) = 0.004993 \]

\[ SE(\hat{\beta}_1) = 0.0050 \]
95% CI for β: \[ \hat{\beta} \pm \left( t_{0.05}^{n-2} \right) \text{SE} (\hat{\beta}) \]
\[ \div \]
\[ -0.88 \pm (2)(0.005) \]

95% CI:
\[ ( -0.889, -0.887 ) \]