Name: ID: Sec.:   Serial:

State University recently randomly sampled eight students and analyzed grade point average (GPA-y) and number of study hours per week (x). The following data were observed:

Hours (x)	30	25	28	20	22	10	19	22
GPA (y)	3.45	3.12	3.4	3.22	3	2.8	3	3.1

Given that:

$$\sum X = 176, \sum Y = 25.09, \sum XY = 560.3, \sum X^2 = 4138, \sum Y^2 = 79.0153, SSE = \textbf{0.066553}$$

a. Obtain the best fit for the regression line equation

The final answer
$\hat{y} = 2.4477 + 0.0313x$

b. Do you think that there is a linear relation between the GPA and the number of study hours per week? test using $\alpha = .05$
You may test the following hypothesis
$H_0 : \beta = 0 \ \ VS \ \ H_1 : \beta \neq 0$
And you will reject H_0

c. If the correlation coefficient is 89.24%, find the coefficient of determination and interpret its value.

The value of R^2 is
$r = 0.8924 \Rightarrow R^2 = r^2 = 0.7964$

For the interpretation see your notes.

d. Find a 95% C.I. for the mean GPA given that the number of study hours per week is 24 hours?

You have to uses the following formula:

$$\hat{y}_0 \pm t_{\alpha/2} S \sqrt{\frac{1}{n} + \frac{(x_0 - \bar{x})^2}{S_{XX}}}$$

And the answer is:
$3.1024 < \mu_{Y|x_0} < 3.2954$