Problem 4 **OK** .....

(i) Matlab: output of 95% confidence interval of $\mu_1 - \mu_2$: 5.7183, 7.3383

By hand: 95% confidence interval of $\mu_1 - \mu_2$: 4.1866, 7.8135

which formula did you use : $\bar{I}_{\mu_X - \mu_Y} = (\bar{x} - \bar{y}) \pm t_{\alpha/2}(n_1 + n_2 - 2) \cdot S\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}$

(ii) Matlab: reject H_0? : Yes.

By hand: $TS =$ 6.915 and $C =$ $(-\infty, -2.09] \cup [2.09, \infty)$, reject H_0? : Yes!

Problem 5 **OK** .....

With such 1000 (95%) confidence intervals, around 50 such intervals do not containing the real value p.

(i) For $Bin(16, 0.3)$, find $np =$ 4.8 $n(1-p) =$ 11.2

The number of intervals not containing the real value p : 133

(ii) For $Bin(80, 0.3)$, find $np =$ 24 $n(1-p) =$ 56

The number of intervals not containing the real value p : 41

Problem 6 **OK** .....

(i) Does the plot of x and y look like a line? Yes. Correlation coefficient $\rho_{X,Y} =$ 0.8584

(ii) What is the estimated regression line? $\hat{y} = 33.8282 + 10.7910x$.

(iii) Standard errors of the coefficients: $s_{\hat{\beta}_0} =$ 2.7618 and $s_{\hat{\beta}_1} =$ 0.6263

(vi) $TS =$ 17.15 and $C =$ $(-\infty, -2.575] \cup [2.575, \infty)$, reject H_0? : Yes (TS $\notin$ C)

(v) Do you think $\varepsilon_j \sim N(0, \sigma^2)$? Yes!

Problem 7 **OK** .....

(i) What is the estimated logit function? $\hat{p}(x) = \frac{e^{16.3276 - 0.2508x}}{1 + e^{16.3276 - 0.2508x}}$

(ii) $TS =$ -2.5010 and $C =$ $(-\infty, -1.96] \cup [1.96, \infty)$, reject H_0? : Yes!

(iii) $\hat{p}(65) =$ 0.013.