EPPS 6313 : Recitation Session #4

Problem 1

Ten cigarettes of brand A had an average nicotine content of 3.1mg with standard deviation of 0.5mg, while eight cigarettes of brand B had an average nicotine content of 2.7mg with standard deviation of 0.7mg.
Test the difference (Assumption : two sets of data is independent)

Problem 2

A researcher believes that children in a certain school have dangerous levels of lead in their blood. Assume the unsafe level is 60.0 parts per million (ppm). Blood tests are performed on a random sample of 229 kids from the school, finding a sample mean of 61.8 and a sample standard deviation of 15.
Test the hypothesis that the mean level in the school is above the unsafe level at alpha = 0.05.

Problem 3

Use following data information to test whether there is a difference in the proportion of workers who belong to unions by marital status at the 0.01 level of significance.

- Married : Yes(# is 350, union proportion is 0.21), No (# is 184, union proportion is 0.13)
- Union proportion : 0.18

EPPS 6316 : Recitation Session #4

Problem 1

Interpret the βs. For β_3, the dependent variable is just Y_i

$$ln(Y_i) = \alpha + \beta_1 x_{1i} + \beta_2 ln(x_{2i}) + \beta_3 \frac{1}{x_{3i}}$$

Problem 2

Which variable has the largest effect on Y

$$Y_i = 37 + (0.4)x_{1i} + (-0.6)x_{2i} + (0.02)x_{3i}$$

Variable	Std.Dev
Y	13
x_1	9
x_2	40
x_3	80

Problem 3

```
      Source |       SS       df       MS              Number of obs =       6
-------------+------------------------------           F(  2,     3) =   81.42
       Model |  163.815365     2  81.9076823           Prob > F      =  0.0024
    Residual |  3.01796875     3  1.00598958           R-squared     =  (   )
-------------+------------------------------           Adj R-squared =  (   )
       Total |  166.833333     5  33.3666667           Root MSE      =   1.003
------------------------------------------------------------------------------
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   1.172656   .5267192     2.23   0.112    -.5035992    2.848912
          x2 |  -.3398438   .2260208    -1.50   0.230    -1.059143    .3794554
       _cons |   2.223438   1.788061     1.24   0.302    -3.466969    7.913844
------------------------------------------------------------------------------
```

Calculate R^2 and $\bar{R}^2$: