

# Question 1

## Part a)

```
clear all
set more off
cap log close
use caschool.dta
list
```

\*1 Part a

```
reg testscr str comp_stu el_pct
```

. \*1 a)

```
. reg testscr str comp_stu el_pct
```

Source	SS	df	MS	Number of obs	=	420
Model	66004.0238	3	22001.3413	F(3, 416)	=	106.29
Residual	86105.5698	416	206.984543	Prob > F	=	0.0000
				R-squared	=	0.4339
				Adj R-squared	=	0.4298
Total	152109.594	419	363.030056	Root MSE	=	14.387

testscr	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
str	-.8489998	.3932246	-2.16	0.031	-1.621955	-.0760449
comp_stu	27.26961	11.62113	2.35	0.019	4.426158	50.11307
el_pct	-.6303601	.039997	-15.76	0.000	-.7089814	-.5517387
_cons	677.0642	8.303396	81.54	0.000	660.7424	693.3861

ESS = 66004.0238

SSR=86105.5698

TSS= 152109.594

$R^2 = 1 - \text{SSR}/\text{TSS} = 1 - 86105.5698 / 152109.594$

$1 - 0.56607586$

$0.43392$

Adjusted  $R^2 = 1 - \{(n-1)/(n-k)\}(1-R^2)$

$1 - (419/415) 0.5660$

$1 - 0.57109$

$0.4289$

g)

```

76 *part g
77 reg testscr str comp_stu el_pct, r
78

```

```

Linear regression               Number of obs   =       420
                               F(3, 416)          =      154.76
                               Prob > F           =      0.0000
                               R-squared          =      0.4339
                               Root MSE       =      14.387

```

testscr	Coefficient	Robust std. err.	t	P> t	[95% conf. interval]	
str	-.8489998	.4317359	-1.97	0.050	-1.697656	-.0003439
comp_stu	27.26961	12.62941	2.16	0.031	2.444203	52.09503
el_pct	-.6303601	.0313454	-20.11	0.000	-.6919753	-.5687449
_cons	677.0642	9.203911	73.56	0.000	658.9722	695.1562

B1 is the coefficient of STR

Ho: B1=0

Ha: B1 not equal to 0

i) The t value at 5% LOS is -1.96 and 1.96. The t value we get is -1.97 which lies in the rejection region. Thus we reject the null

ii) P value is 0.05. At 5 percent level of significance, a p-value of less than equal to 5 indicates that null should be rejected.

iii) Our confidence interval does not contain 0. Hence we reject the null.

Thus all there indicators show that **STR is significantly different from 0.**