

```

/*****
Homework Assignment #6 Solution
*****/

```

```

Question 1
*****/

```

You need to do these 6 contrasts for ALL three methods:

```

contrast 1: race1 vs. race2
contrast 2: race1 vs. race3
contrast 3: race1 vs. race4
contrast 4: race2 vs. race3
contrast 5: race2 vs. race4
contrast 6: race3 vs. race4

```

```

/****Method 1****/
use http://cdph.fsu.edu/sya6933/hw6.dta,clear
tab race,gen(race)
reg edu race2 race3 race4
reg edu race1 race3 race4
reg edu race1 race2 race4

```

```

/****Method 2****/
use http://cdph.fsu.edu/sya6933/hw6.dta,clear
xi:reg edu i.race
char race [omit] 2
xi:reg edu i.race
char race [omit] 3
xi:reg edu i.race

```

```

/****Method 3: xi3****/
use http://cdph.fsu.edu/sya6933/hw6.dta,clear
xi3:reg edu g.race
char race [omit] 2
xi3:reg edu g.race
char race [omit] 3
xi3:reg edu g.race

```

```

/*****
Question 2
*****/

```

```

/****Method 1: Reverse Helmert coding****/

```

```

xi3:reg edu r.race
r.race      _Irace_1-4      (naturally coded; _Irace_1 omitted)

```

Source	SS	df	MS	Number of obs =	1203
Model	726.895531	3	242.29851	F(3, 1199) =	22.90
Residual	12687.7645	1199	10.5819554	Prob > F =	0.0000
				R-squared =	0.0542
				Adj R-squared =	0.0518
Total	13414.66	1202	11.1602829	Root MSE =	3.253

edu	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
_Irace_2	-1.492648	.2317766	-6.44	0.000	-1.947381 -1.037916
_Irace_3	-1.308565	.2234269	-5.86	0.000	-1.746916 -.8702133
_Irace_4	-.5098414	.3911812	-1.30	0.193	-1.277317 .2576344
_cons	5.693192	.1207294	47.16	0.000	5.456328 5.930056

NOTE: you need to only present coefficient for _Irace_3 here, this is exactly the coefficient for the education difference between African American (race3) and Whites (over all average of race1 and race2)

```
/**Method 2: User defined coding**/
```

```
. char race[user] (1 0 -1 0 \-.5 1 0 -.5 \ -.5 -.5 1 0)
```

```
. xi3:reg edu u.race
```

```
u.race          _Irace_1-4          (naturally coded; _Irace_4 omitted)
```

Source	SS	df	MS	Number of obs =	1203
Model	726.895531	3	242.29851	F(3, 1199) =	22.90
Residual	12687.7645	1199	10.5819554	Prob > F =	0.0000
				R-squared =	0.0542
				Adj R-squared =	0.0518
				Root MSE =	3.253
Total	13414.66	1202	11.1602829		

edu	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
_Irace_1	2.054889	.2645311	7.77	0.000	1.535893	2.573884
_Irace_2	-.6464714	.2536825	-2.55	0.011	-1.144183	-.1487604
_Irace_3	-1.308565	.2234269	-5.86	0.000	-1.746916	-.8702133
_cons	5.693192	.1207294	47.16	0.000	5.456328	5.930056

Note: The last coefficient (-1.309 for _Irace_3) is the one I am interested.

```
/**Bonus question**/
```

```
tab race,sum(edu) mean
```

```
display 4.9483-(7.0032+5.5105)/2    /**this should be the same as the contrast we  
got from _Irace_3, which is -1.3085**/
```