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Section 4e: Practice Problems

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Using Stata: Arm Circumference and Height

1. Recall the regression relating arm circumference to height for the random sample of 150 Nepali children less than 12 months old

```
. regress armcirc height
```

Source	SS	df	MS	Number of obs = 150		
Model	148.874597	1	148.874597	F(1, 148)	=	124.30
Residual	177.263335	148	1.19772523	Prob > F	=	0.0000
-----+-----				R-squared	=	0.4565
Total	326.137932	149	2.18884518	Adj R-squared	=	0.4528
-----+-----				Root MSE	=	1.0944

armcirc	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
height	.1579469	.0141671	11.15	0.000	.1299511	.1859428
_cons	2.695906	.8774225	3.07	0.003	.9620116	4.4298

- Suppose arm circumference had been reported in inches instead of centimeters, but height was still recorded in centimeters

Example: Arm Circumference and Sex

- a) Can you determine what the resulting slope estimate for height would be with this different reporting schema?
- b) What would the R^2 value be with this different reporting schema?

Example: Arm Circumference and Sex

2. Recall the regression relating arm circumference to child's sex for the random sample of 150 Nepali children less than 12 months old

$$\hat{y} = 12.5 + -0.13x$$

- R^2 for this analysis was 0.002 or 0.2%
 - In this example, x is the binary variable for sex, coded as a 1 for female children, and 0 for male children. Suppose x was coded as 1 for male children and 0 for female children.
 - a) What would the estimate of R^2 be?
 - b) What would the estimate of r be?