

1. Després et al (*Amer. J. Clin. Nutrition* 54: 471-477) noted that distribution of adipose tissue is a risk factor for cardiovascular disease. In an analysis of 109 men, they found a linear relation of deep abdominal adipose tissue with waist circumference. The strength of the relation, as measured by the correlation coefficient, was $r = 0.8185$.

The variance explained was thus $r^2 =$ _____.

The unexplained (or error variability) was thus $(1 - r^2)$ or _____.

Construct an ANOVA table and compute an F-ratio, for a sample size of 109, by taking SS_{model} to be the explained variance, taking SS_{error} to be the unexplained variance, and taking the model to have one degree of freedom.

$SS_{\text{total}} =$ _____

Source	df	SS	MS	F
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Does the F-ratio depend on the magnitude of SS_{residual} ? _____

2. This model has two explanatory variables and three explanatory terms:

$$Q = \beta_0 + \beta_{X1} X1 + \beta_{X2} X2 + \beta_{X1 \cdot X2} X1 \cdot X2 + \varepsilon$$

For the following tests, list the number of explanatory and response variables.

	Response	Explanatory
Multiple regression of plankton production on nitrate and phosphate.	_____	_____
Analysis of variance of resting energy expenditure (REE), in HIV and non-infected patients, in five different hospitals.	_____	_____
Correlation of two measures of cardiac output in 25 subjects.	_____	_____
Analysis of yields of three varieties of soybeans.	_____	_____
4-way ANOVA.	_____	_____
ANCOVA with two regression variables.	_____	_____