Correlation Analysis

1. For each of the following correlation matrices calculate the following: $R^2_{Y|X1,X2}$, $r_{YX1|X2}$, $r_{Y(X1|X2)}$, and $b_{YX1|X2}$.

	Y	X1	X2			Y	X1	X2
Y	4.0	.40	-.60		Y	5.0	.50	.30
X1		3.0	0		X1		4.0	-.60
X2			5.0		X2			3.0

Values on the diagonal are the standard deviations.

For each of the following situations determine the appropriate statistic of interest.

    A) Multiple Correlation
    B) Squared Multiple Correlation
    C) Partial Correlation
    D) Squared Partial Correlation
    E) Part or Semi-Partial Correlation
    F) Squared Part Correlation
    G) Pearson Correlation
    H) Partial Regression Coefficient

    An educational psychologist was interested in determining
    the linear association between school achievement and
    student aspiration when social class was controlled.

    A counselor was interested in determining the proportion of
    variation in rate of truancy that could be explained by
    grade point average and student self concept.

    A reading specialist was interested in determining the
    proportion of variation in reading comprehension that could
    be uniquely attributed to vocabulary when IQ was controlled.

    An exercise physiologist wanted to estimate the change in
    weight for each day spent participating in an experimental
    exercise program when age of the participant is controlled.