MULTIPLE REGRESSION FORMULAS

For $k = 2$:

$B_{12.3} = (r_{12} - r_{13}r_{23}) / (1 - r_{23}^2)$	standardized partial regression coefficient for variable z_2
$B_{13.2} = (r_{13} - r_{12}r_{23}) / (1 - r_{23}^2)$	standardized partial regression coefficient for variable z_3
$b_{12.3} = B_{12.3}(s_1/s_2)$	unstandardized partial regression coefficient*
$b_{13.2} = B_{13.2}(s_1/s_3)$	unstandardized partial regression coefficient*
$b_1 = M_1 - b_{12.3} M_2 - b_{13.2} M_3$	intercept (valid for both raw and mean-deviation scores)*
$R^2 = B_{12.3} r_{12} + B_{13.2} r_{13}$	squared multiple correlation*
	*generalizes directly to $k > 2$ regression equations

For $k \geq 2$:

$$\text{adj-}R^2 = 1 - (1 - R^2)\,[(n-1)/(n-k-1)]$$

$\Delta R^2_j = R^2_{j\,\text{in}} - R^2_{j\,\text{out}} = B_j^2\ \text{tol}_j$	semipartial squared for jth independent variable
where $\text{tol}_j = 1 - R^2_{j.234...(j)...m}$	the proportion of unique variance in jth variable

$$F_{k,\,n-k-1} = \frac{R^2 / k}{(1 - R^2)/(n-k-1)}$$

to test squared multiple correlation

$$F_{1,\,n-k-1} = \frac{\Delta R^2_j / 1}{(1 - R^2)/(n-k-1)}$$

$= t^2$ with $df = n - k - 1$ (to test significance of b_j or B_j)

$$F_{k',\,n-k-1} = \frac{\Delta R^2 / k'}{(1 - R^2)/(n-k-1)}$$

where k' = # IVs in subset of variables being added to equation (i.e., $k' < k$)
and ΔR^2 is the increment to the R^2 with the addition of that set (R^2 from complete equation).