

$$r_{c(ws)} = \frac{w_1 r_{c1} \sigma_1 + w_2 r_{c2} \sigma_2}{\sqrt{w_1^2 \sigma_1^2 + w_2^2 \sigma_2^2 + 2r_{12} w_1 \sigma_1 w_2 \sigma_2}} \quad \text{(Correlation of a sum of two weighted measures with a third measure)} \quad (16.25)$$

where w_1 and w_2 = weights attached to measures X_1 and X_2 , respectively.

$c(ws)$ denotes correlation between the criterion and a weighted sum.
 c_i denotes correlation between the criterion and X_1 .

Source:

Guilford, J.P. (1965). *Fundamental statistics in psychology and education* (4th ed.) New York: McGraw-Hill.

Formula 16.25 appears on page 427.