$where,\quad b_{xy} = r_{xy}\frac{\sigma_x}{\sigma_y}$

(2) $Regression\ line\ of\ y\ on\ x\ is$

$(y - \bar{y}) = b_{yx}(x - \bar{x})$

$where,\quad b_{yx} = r_{xy}\frac{\sigma_y}{\sigma_x}$

$[b_{xy}, b_{yx} \rightarrow Regression\ co-efficient]$

(3) $The\ two\ regression\ lines\ intersect\ at\ (\bar{x}, \bar{y})$.

(4) $b_{xy} = \frac{Cov(x,y)}{\sigma_y{}^2},\ b_{yx} = \frac{Cov(x,y)}{\sigma_x{}^2}$

(5) $b_{xy} = \frac{1}{b_{yx}}\qquad i.e., b_{xy}b_{yx} = 1$.

(6) $The\ angle\ between\ two\ regression\ line\ is\ tan\theta = \left|\frac{1-r_{xy}{}^2}{b_{xy}+b_{yx}}\right|$.

Spearman Rank Correlation Coefficient

(1) $The\ Spearman\ rank\ correlation\ coefficient\ is\ given\ by$

$$r = 1 - \frac{6\sum d^2}{n(n^2-1)}.$$

$where,\quad d = difference\ between\ the\ ranks$

$\qquad\qquad n = total\ observations$

(2) $If\ there\ are\ repeatation\ of\ a\ rank\ for\ m\ items\ then\ a\ correction\ of\ the\ factor$

$\frac{1}{12}(m^3 - m)\ is\ needed.$

$Then\ the\ rank\ will\ be\ r = 1 - \frac{6[\sum d^2 + \frac{1}{12}(m^3-m)]}{n(n^2-1)}.$