

STAT 1000 Formula Sheet

$$1. r = \frac{1}{n-1} \sum_{i=1}^n \left(\frac{x_i - \bar{x}}{s_x} \right) \left(\frac{y_i - \bar{y}}{s_y} \right) = \frac{1}{(n-1)s_x s_y} \sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})$$

$$2. b = r \frac{s_y}{s_x}$$

$$3. a = \bar{y} - b\bar{x}$$

$$4. P(X = k) = \binom{n}{k} p^k (1-p)^{n-k}$$

$$5. z = \frac{\hat{p} - p}{\sqrt{\frac{p(1-p)}{n}}}$$

$$6. \hat{p} \pm z^* \sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$$

$$7. n = \left(\frac{z^*}{m} \right)^2 p^* (1-p^*)$$