Discrete Random Variables: Mean, SD (μ_X, σ_X):

Data Table:

Let X = some discrete random variable and $P(X)$ = the probability of X.

Let	Value	P(X)	Probability
$X_1 =$	0	0.099	10%
$X_2 =$	1	0.333	30%
$X_3 =$	2	0.566	60%

Mean:

$$\mu_X \quad = \quad (X_1 * P(X_1)) + (X_2 * P(X_2)) + (X_3 * P(X_3))$$

$$= \quad (0 * 0.099) + (1 * 0.333) + (2 * 0.566)$$

$$= \quad (0 + 0.333 + 1.132)$$

$$= \quad \mu_X = 1.465$$

Standard Deviation:

$$\sigma_X \quad = \quad ((X_1 - \mu_X)^2 * P(X_1)) + ((X_2 - \mu_X)^2 * P(X_2)) + ((X_3 - \mu_X)^2 * P(X_3))$$

$$= \quad ((0 - 1.456)^2 * 0.099) + ((1 - 1.456)^2 * 0.333) + ((2 - 1.456)^2 * 0.566)$$

$$= \quad (0 + 0.279 + 0.167) = 0.467 \textbf{ (variance = 0.467)}$$

$$= \quad \sqrt{0.467}$$

$$= \quad \sigma_X = 0.683$$