Important Formulas   Elementary Statistics: A Step by Step Approach (Bluman)

Chapter 2

Class Midpoint $= \dfrac{lower + upper}{2}$

Chapter 3

Midrange $= \dfrac{max + min}{2}$

Range = maximum − minimum

Coefficient of Variation $= \dfrac{stdev}{mean} * 100\%$

Chebyshev's Theorem:
At least $1 - \dfrac{1}{k^2}$ of the data lie within k standard deviations of the mean.

z-score $= \dfrac{x - mean}{stdev}$

IQR $= Q_3 - Q_1$

Chapter 4

$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$

$P(A \text{ and } B) = P(A) * P(B)$ if A and B are independent events

$P(A \text{ and } B) = P(A) * P(B|A)$ if A and B are dependent events

$P(B|A) = \dfrac{P(A and B)}{P(A)}$

$P(\text{complement of } E) = 1 - P(E)$

$P(\text{at least 1}) = 1 - P(\text{none})$

Chapter 5

$q = 1 - p$ $\mu = np$ $\sigma = \sqrt{npq}$

Chapter 6

$z = \dfrac{x - \mu}{\sigma}$

$z = \dfrac{\left(\overline{x} - \mu\right)}{\left(\dfrac{\sigma}{\sqrt{n}}\right)}$

Chapter 7

Means:

$CI = \overline{x} \pm z \cdot \dfrac{\sigma}{\sqrt{n}}$ or $\overline{X} - E \le \mu \le \overline{X} + E$

$n = \left(\dfrac{z_{\alpha/2} * \sigma}{E}\right)^2$

Proportions:

$CI = \hat{p} \pm z \cdot \sqrt{\dfrac{\hat{p}\hat{q}}{n}}$ or $\hat{p} - E \le p \le \hat{p} + E$

$n = \hat{p} * \hat{q} \left(\dfrac{z_{\alpha/2}}{E}\right)^2$

Chapter 8
Hypothesis Testing:

Means $z = \dfrac{\left(\overline{x} - \mu\right)}{\left(\dfrac{\sigma}{\sqrt{n}}\right)}$

Proportions $z = \dfrac{\left(\hat{p} - p\right)}{\sqrt{pq/n}}$

Chapter 10

Correlation $t = \dfrac{r}{\sqrt{\dfrac{1 - r^2}{n - 2}}}$