Chapter 8

• Graphical method for comparing two probability distributions: quantile-quantile plot (Q-Q plot). This is a plot of quantiles of two distributions against each other. Usually it is used for comparing the empirical distribution of the sample and some theoretical distribution. If the distributions are similar, the points of the plot will approximately lie on a straight line. In Minitab, a Q-Q plot is obtained by

Graph → Probability Plot

Chapter 9

• Estimator (a random variable i.e. a function) and estimate (a realization of the estimator i.e. a number (or a vector)).

• Let $\hat{\theta}$ be an estimator of parameter θ. $\hat{\theta}$ is said to be unbiased if $E\hat{\theta} = \theta$. Examples: $\bar{X}$ is an unbiased estimator of μ, S^2 is an unbiased estimator of σ^2.

• If $\hat{\theta}_1$ and $\hat{\theta}_2$ are two unbiased estimators of θ, then $\hat{\theta}_1$ is said to be more efficient than $\hat{\theta}_2$ if $\mathrm{Var}(\hat{\theta}_1) \leq \mathrm{Var}(\hat{\theta}_2)$ for all values of θ and $\mathrm{Var}(\hat{\theta}_1) < \mathrm{Var}(\hat{\theta}_2)$ for at least one value.

• $100(1-\alpha)\%$ confidence interval $[\hat{\theta}_L, \hat{\theta}_U]$:

$$P([\hat{\theta}_L \leq \theta \leq \hat{\theta}_U]) = 1 - \alpha.$$