

Joe Bawazir Z2S:008

X Chart:

$$\left\{ \begin{array}{l} UCL = \mu + 3\frac{\sigma}{\sqrt{n}} \\ CL = \mu \\ LCL = \mu - 3\frac{\sigma}{\sqrt{n}} \end{array} \right\}$$

where  $\hat{\mu} = \bar{X}$   
 $\hat{\sigma} = \frac{s}{\sqrt{c_4}}$

$$\left\{ \begin{array}{l} UCL = \hat{\mu} + 3\frac{\hat{\sigma}}{\sqrt{n}} \\ CL = \hat{\mu} \\ LCL = \hat{\mu} - 3\frac{\hat{\sigma}}{\sqrt{n}} \end{array} \right\}$$

$$\left\{ \begin{array}{l} UCL = \mu + 3\frac{\sigma}{\sqrt{n}} \\ CL = \mu \\ LCL = \mu - 3\frac{\sigma}{\sqrt{n}} \end{array} \right\}$$

$\mu, \sigma$  given  $\rightarrow$

$\mu, \sigma$  NOT given  $\rightarrow$

S Chart:

$$\left\{ \begin{array}{l} UCL = B_6\sigma \\ CL = c_4\sigma \\ LCL = B_5\sigma \end{array} \right\}$$

$$\left\{ \begin{array}{l} UCL = B_6\hat{\sigma} \\ CL = c_4\hat{\sigma} \\ LCL = B_5\hat{\sigma} \end{array} \right\}$$

where  $\hat{\sigma} = \frac{s}{\sqrt{c_4}}$

$$\left\{ \begin{array}{l} UCL = B_6\sigma \\ CL = c_4\sigma \\ LCL = B_5\sigma \end{array} \right\}$$

$\mu, \sigma$  given  $\rightarrow$

$\mu, \sigma$  NOT given  $\rightarrow$

