

**How to know if  $\sigma$  known or unknown :**

**$\sigma$  known**

- The population variance .....( $\sigma^2$ )
- The population standard deviation..... ( $\sigma$ )
- It is normal distribution with variance .....( $\sigma^2$ )
- It is normal distribution with standard deviation .....( $\sigma$ )

**$\sigma$  unknown: (Use S instead )**

- Sample variance..... ( $S^2$ )
- Sample standard deviation ..... (S)
- If we have a sample of size ..(n),has mean (  $\bar{X}$  ) with variance ...( $S^2$ )
- If we have a sample of size ..(n),has mean (  $\bar{X}$  ) with standard deviation ...(S)

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