#### Z and T INTERVALS

These tests are used to construct a confidence interval for a population mean  $(\mu)$ .

When  $\sigma$  is known, use a Z-Interval; when  $\sigma$  is unknown, use a T-Interval.

The tension readings in millivolts (mV) from a random sample of 20 screens from a single day's production are as follows:

269.5 297.0 269.6 283.3 304.8 280.4 233.5 257.4 317.5 327.4 264.7 307.7 310.0 343.3 328.1 342.6 338.8 340.1 374.6 336.1

Construct and interpret a 90% confidence interval for the mean tension of all the screens produced on this day.

## P) STATE POPULATION PARAMETER:

## A) VERIFY CONDITIONS REQUIRED FOR TEST:

- a) Random
- b) Normal parent population or large sample size or justification for normality

c) Independence

# I) CONSTRUCT INTERVAL

Since  $\sigma$  is unknown, we will construct a T-Interval:

#### a) USE t DISTRIBUTION TABLE:

Determine mean  $(\bar{x})$  and standard deviation (s) i)

Determine  $t^*$  using (20-1) degrees of freedom ii)

Construct confidence interval iii)

b) **USE CALCULATOR** 

S) **STATE CONCLUSION:**