

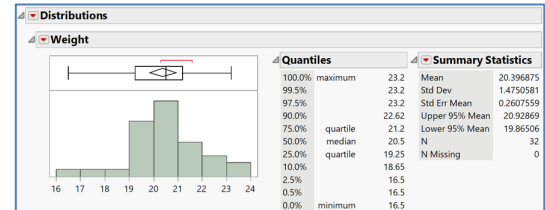
# Prediction Interval

Use to produce an interval estimate of a single observation, a sample of n observations, or the sample mean and standard deviation of a sample of n observations.

## Prediction Interval for an Individual Observation

1. From an open JMP data table, select **Analyze > Distribution**.
2. Select one or more continuous variables from **Select Columns**, click **Y, Columns** (continuous variables have blue triangles), and click **OK**.
3. From the Distributions report window, select **Prediction Interval** under the **red triangle** next to the variable name.
4. Select the **confidence level (1-alpha)** and enter 1 for **number of future samples**. Choose Two-sided or One-sided interval. Here we chose **95% confidence** and **two-sided**.

Coating.jmp (Help > Sample Data Folder > Quality Control)



Prediction Intervals - Weight

Enter (1-alpha) for prediction interval: 0.95

Enter number of future samples: 1

☒ Two-sided  
☐ One-sided lower limit  
☐ One-sided upper limit

OK Cancel Help

Prediction Interval				
Parameter	Future N	Lower PI	Upper PI	1-Alpha
Individual	1	17.34183	23.45192	0.950
Mean	1	17.34183	23.45192	0.950
Std Dev	1	.	.	0.950

### Interpretation:

It is estimated, with 95% confidence, that a randomly selected observation from this population will be between 17.34 and 23.45.

Note: The prediction interval for the mean of n=1 is the same as that of an individual observation and there is no prediction interval for the standard deviation of n=1.

## Prediction Intervals for a Sample of n Observations

1. Follow steps 1-4 above choosing a n>1 for **number of future samples**. Here we chose **95% confidence**, **two-sided**, and **n=10**.

JMP will add a table displaying the lower and upper bound of the Prediction Interval for a sample of n=10 observations as well as the sample mean and standard deviation.

Note: Calculations are based upon the assumption of a normal distribution as an appropriate model for the population.

Prediction Intervals - Weight

Enter (1-alpha) for prediction interval: 0.95

Enter number of future samples: 10

☒ Two-sided  
☐ One-sided lower limit  
☐ One-sided upper limit

OK Cancel Help

Prediction Interval				
Parameter	Future N	Lower PI	Upper PI	1-Alpha
Individual	10	15.86996	24.92379	0.950
Mean	10	19.30698	21.48677	0.950
Std Dev	10	0.782506	2.359393	0.950

### Interpretation:

It is estimated, with 95% confidence, that:

- 10 randomly selected observation from this population will all be between 15.87 and 24.92.
- The mean of the 10 observations will be between 19.31 and 21.49.
- The standard deviation of the 10 observations will be between 0.78 and 2.36.

Visit **Basic Analysis > Distributions > Options for Continuous Variables > Prediction Intervals** in **JMP Help** to learn more.