Measures of Central Tendency and Dispersion from Grouped Data

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Mean From a Freq. Table

$$\bar{x} = \frac{\Sigma(f_i \cdot x_i)}{\Sigma f_i}$$

$f_i = \text{frequency}$

$x_i = \text{class midpoint}$

Mean from a Freq. Table (TI-83/84)

1. Put Midpoints in L1, Freq in L2
2. "Stat" button, Choose "CALC", Choose "1-Var Stats", "enter" button, "2nd" button, "1" button, "," button, "2nd" button, "2" button, "enter", should look like:
   1-Var Stats L1,L2

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1. Find the mean of the following frequency distribution

Ages	Freq
0 – 4	3
5 – 9	8
10 – 14	5
15 – 19	12
20 – 24	2

Sample Std Dev from a Freq. Table

$$s = \sqrt{\frac{\Sigma\left((x_i - \bar{x})^2 f_i\right)}{(\Sigma f_i) - 1}}$$

$x_i = \text{class midpoint}$

$f_i = \text{frequency}$

Population Std Dev from a Freq. Table

$$\sigma = \sqrt{\frac{\Sigma\left((x_i - \mu)^2 f_i\right)}{\Sigma f_i}}$$

$x = \text{class midpoint}$

$f = \text{frequency}$

Std Dev from a Freq. Table (TI-83/84)

1. Put Midpoints in L1, Freq in L2
2. "Stat" button, Choose "CALC", Choose "1-Var Stats", "enter" button, "2nd" button, "1" button, "," button, "2nd" button, "2" button, "enter", should look like:
   1-Var Stats L1,L2

Variance from a Freq. Table (TI-83/84)

• Square the standard deviation you found. Be sure not to round the standard deviation any BEFORE you square it.

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2. Find the sample standard deviation and sample variance of the following frequency distribution

Ages	Freq
0 – 9	2
10 – 19	4
20 – 29	10
30 – 39	3
40 – 49	1

Weighted Mean

$$\bar{x}_w = \frac{\Sigma w_i x_i}{\Sigma w_i}$$

w_i = the weight of the ith observation

x_i = the value of the ith observation

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3. Weighted Mean

In a course, attendance counts for 10% of the grade, quizzes count for 20%, tests count for 50% and final as 20%. Bill got 100% for attendance, 80% for quizzes, 70% for tests and 30% on the final (he should have studied harder). What is Bill's course average?