

**Problem 1:** The following frequency distribution summarizes the final exam scores for a summer Statistics course.

Class	Frequency	Relative Frequency	Cumulative Frequency
51–60	1	7.1%	7.1%
61–70	2	14.3%	21.4%
71–80	3	21.4%	42.8%
81–90	5	35.7%	78.5%
91–100	3	21.4%	100%

(a) Fill in the relative frequencies and cumulative frequencies in the table above.

(b) Identify the lower class limits.

51, 61, 71, 81, 91

(c) Identify the upper class limits.

60, 70, 80, 90, 100

(d) Identify the class boundaries.

50.5, 60.5, 70.5, 80.5, 90.5, 100.5

(e) Identify the class midpoints.

55.5, 65.5, 75.5, 85.5, 95.5

(f) What is the class width?

**Problem 2:** For each of the following measurements, indicate the level of measurement, i.e. nominal, ordinal, interval, or ratio.

(a) Ranks of colleges: Ordinal

(b) The volume of a container: Ratio

(c) Support of a political candidate, entered as Don't Support/Support: Nominal

(d) The temperature of metal (°C): Interval

(e) Hair color: Nominal

**Problem 3:** Consider the following dataset:

-3, 1, 2, 4, 4, 6

(a) Find the mean for this dataset. Show your work.

$$\bar{x} = \frac{-3 + 1 + 2 + 4 + 4 + 6}{6} = \frac{14}{6} \approx 2.33$$

(b) Find the standard deviation for this dataset. Show your work.

$x$	$x - \bar{x}$	$(x - \bar{x})^2$
-3	-5.33	28.41
1	-1.33	1.77
2	-0.33	0.11
4	1.67	2.79
4	1.67	2.79
6	3.67	13.47
		Total: 49.34

$$\sigma^2 = \frac{1}{n-1} \sum (x - \bar{x})^2 = \frac{1}{5} \cdot 49.34 \approx 9.87$$

Therefore,  $\sigma \approx \sqrt{9.87} \approx 3.14$ .