

# Test 1

Show all your work

Name: \_\_\_\_\_  
Number: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Score: \_\_\_\_/47

**A TI-83/84 calculator allowed.**

**Problem 1:** Use your calculator to evaluate the following. Round your answers to 6 decimal places.

a.  $\frac{\sqrt{32.17 - 11.78}}{12.39 + 3.2^2} \approx$

b.  $\left(\frac{17}{5}\right)^{3.2} \times 5.4 + \left(\frac{2.3}{1.1}\right)^5 \approx$

Score: \_\_\_\_/3

**Problem 2:** Identify the variable type or data type in each of the following as QUALITATIVE (CATEGORICAL) or QUANTITATIVE (NUMERICAL).

a. The length of time a Capilano employ has been smoking.

b. The type of cell phone used by a Capilano student.

c. The number of cups of coffee served by Tim Hortons at Capilano today.

Score: \_\_\_\_/3

**Problem 3:** Complete the following sentence: STATISTICS IS

Score: \_\_\_\_/2

**Problem 4:** For each task, propose the best sampling method from random, simple random, systematic, stratified, cluster, or convenience. Provide a one-sentence rationale for your chosen method.

a. Winter Olympic Games performance enhancing drug test for athletes to detect whether an athlete uses any.

b. To find the average number of hours per week Capilano students work in their jobs.

Score: \_\_\_\_/6

**Problem 5:** Patients suffering from chest pain were asked to rate the severity of their pain on the 7-point scale where 0 means no pain, and 6 means incapacitating. What level of measurement is being used? Score: /1

**Problem 6:** Shown is a stem-and-leaf display for the exam scores of 20 statistics students. Reorganize the data as a frequency table with 5 classes of width 10. Clearly indicate for each class, the upper and lower class limits, and find frequency and relative frequency for each class. State the class boundaries and the midpoint for the first class.

5	8	
6	0159	Class    Frequency    Relative Frequency
7	34555678	
8	1225	
9	158	
		Total

Score: /6

**Problem 7:** The following data represent the playing time (rounded to the nearest minute) of the 10 tunes on Jacob Collier’s Grammy Award CD:

7, 9, 7, 4, 9, 4, 3, 6, 8, 7

- a. Is “playing time” a discrete or continuous variable?
- b. Find the mean playing time.
- c. Find the median playing time.
- d. Find the modal playing time.
- e. Find the sample standard deviation of the playing time. Use the computational formula

$$s = \sqrt{\frac{n \sum x^2 - (\sum x)^2}{n(n-1)}}$$

and clearly show the substitution of the values of  $\sum x$  and  $\sum x^2$  into the formula.

Score: /6

**Problem 8:** Comment on each graph regarding what point it's trying to make, what is misleading, and how to make the graph or its data unbiased.

FIGURE A: The top five nations in the world ranked by number of cars stolen in 2000. (The UN Office on Drugs and Crime.)

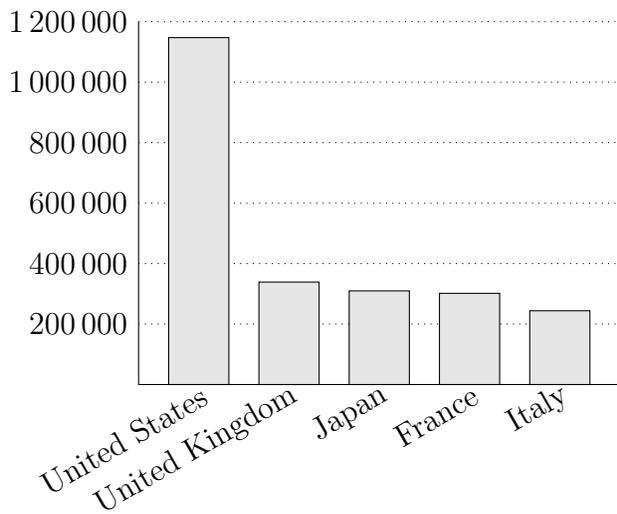


FIGURE B: Percentage of voters who agree with the Florida court's decision to remove the feeding tube from Terri Schiavo in 2005 by political affiliation. (CNN.com)

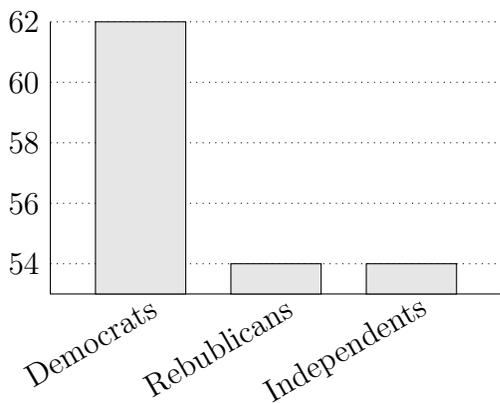
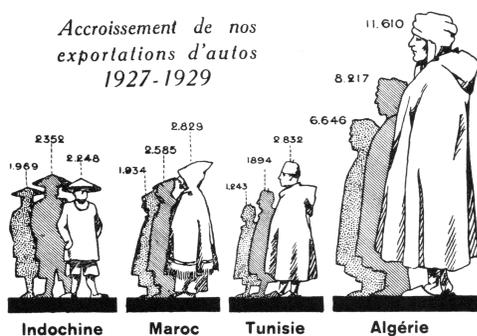


FIGURE C: Increase in our car exports, 1927–1929. (R. Satet, *Les Graphiques* (Paris 2932))



Score: /9

