

Expectation

This assignment will provide you with an opportunity to showcase your ability to...
 “...demonstrate an understanding of the applications of data management...”

Assessment

Still Learning...	Almost There...	Got It!

Part A-Knowledge & Understanding

1. Match each of the terms with their definition.

- | | |
|--|--|
| <p><u>5</u> sample</p> <p><u>6</u> percentile</p> <p><u>2</u> cluster sampling</p> <p><u>10</u> median</p> <p><u>9</u> stratified random sampling</p> <p><u>3</u> closed response</p> <p><u>4</u> population</p> | <p>1. difference between the maximum and minimum values</p> <p>2. population is broken into groups; all members of randomly selected groups are surveyed</p> <p>3. question types that include multiple choice, yes/no, fill-in-the-blank</p> <p>4. all individuals in a group being studied</p> <p>5. a group representative of the population</p> <p>6. The percent ranking of a score from the top of a sorted list</p> <p>7. Each item in the calculation is multiplied by a factor</p> |
|--|--|

(OVER for more options)

- 1 range ~~8~~ like a weighted mean that is used to show change in price over time
- 7 weighted mean ~~9~~ population is broken into groups; then a random sample is taken from each group
- 8 statistical index ~~10~~ the second quartile; middle datum in a set of data

ANSWER QUESTIONS #2 to 6 ON LINED PAPER.

2. Given the following data set, calculate each of the following measures: mean, median, mode, and range. Show your work.

{2, 5, 2, 8, 3} Mean = $\frac{2+2+3+5+8}{5}$; median = 3 ; mode = 2 ; range = 8-2 = 6

= 4

3. List examples of two statistical indices other than the CPI. Describe what the indices are used for.

<< Answers will vary >>

4. A newspaper reported that 22% of voters supports the Purple Party, and that this was accurate to within 2.5%, 19 times out of 20. Which of the following is most likely to be the actual level of support for the Purple Party?

- a) 2.5% b) 20.5% c) 25% d) 95%
- $22\% - 2.5\% = 19.5\%$
- $22\% + 2.5\% = 24.5\%$

5. Abby wrote a test and earned a grade that is in the 75th percentile. Beth earned a grade that was in the 25th percentile. Who received the better mark? Explain. Abby received a better mark as 75% of the students in her class have a mark less than hers.

6. In Canada, the CPI (2002 = 100) in 2008 was 115.4. What does this indicate about the 2008 consumer prices? Explain.

It indicates that from 2002 to 2008, there has been a percent increase of 15.4%. That is, the 2008 consumer prices will be 15.4% more than those of 2002.

Part B-Application

ANSWER THE FOLLOWING ON LINED PAPER.

1. Which sampling technique—simple random, stratified, cluster, convenience, voluntary—would you use, in this situation, to minimize sampling bias? Explain your choice of sampling technique.

SITUATION:

You'd like to survey the school population, early in the year, to determine what extra-curricular activities should be offered over the course of the school year. Stratified random sampling, as this will ensure that each grade-level is represented fairly in the survey. The same proportion of students are sampled from each grade-level.

2. Calculate the mean engine displacement (in cubic centimetres) for the following cars:

Displacement (cm ³)	1500	2500	3500	4500
# of Engines (Frequency)	8	10	5	2

$$\begin{aligned} \text{mean} &= \frac{(8 \times 1500) + (10 \times 2500) + (5 \times 3500) + (2 \times 4500)}{8 + 10 + 5 + 2} \\ &= \frac{12000 + 25000 + 17500 + 9000}{25} \end{aligned}$$

8 + 10 + 5 + 2

= 12000 + 25000 + 17500 + 9000

25

∴ The mean engine displacement is 2540 cm³.

Part C-Thinking, Inquiry and Problem Solving

ANSWER ON LINED PAPER.

- a) Some schools might hold a carnival during their Spirit week.
- b) Write a biased question that surveys students' opinions about having a carnival during spirit week.
- c) Write an unbiased question that surveys students' opinions about having a carnival during spirit week.

← Answers will vary. →

2. A new restaurant chain records the following opening week revenues for 10 of its locations: \$21, 500, \$37 500, \$42 300, \$58 000, \$31 300, \$41 800, \$37 000, \$63 200, \$58 000, \$79 000. Which measure of central tendency—mean, median, or mode—might best represent the following set of data? Explain. The median. The minimum and maximum values are significantly different than their next closest values. This means that they're outliers and can impact the value of the mean.

3. Describe what might be misleading about the following statement: "60% of Students Find Math Difficult."

E.g.) How many students were sampled?
What ages? Grade-levels? How many from each level?
Others?