University of Biskra
Biology Department
Module: Math-stat

First year license
2026/2027

Home Work

Exercise 1

I) Let f be a function defined by:

$$f(x) = \frac{x^2 + 2x + 1}{4(x-2)}$$

1. Give the domain of definition, D_f, of the function f.
2. Calculate the limits of f at the boundaries of its domain.
3. Determine $f'(x)$ where f is differentiable.
4. Find numbers A, B and C where: $f(x) = Ax + B + \frac{C}{4(x-2)}$

II) Deduce the calculation of the following integral:

$$\int \frac{x^2 + 2x + 1}{4(x-2)} dx.$$

Exercise 2

A biologist studies seed germination under controlled laboratory conditions. The number of germinated seeds is recorded for 30 experimental trays. The following data are obtained:

12	15	18	14	20	17
13	16	19	15	22	14
18	21	16	13	17	20
15	19	23	16	14	18
21	17	12	20	16	19

Part I:

1. Determine the variable studied and its nature.
2. Construct a frequency distribution table.
3. Represent this distribution using the appropriate diagram.
4. Give the cumulative function of frequencies and draw its graph.
5. Determine the following measures: mean, median, mode, variance, standard deviation and range.

Part II:

To simplify the statistical analysis, the biologist decides to group the observations into class intervals.

1. By applying the Sturges'rule ($NC \simeq 1 + 3,3 \log N$), calculate the number of classes(NC) required to make the classifications in a continuous statistical series.
2. Calculate the amplitude for each class.
3. Construct the table with frequency (calculate relative frequency, cumulative frequency.)
4. Represent this distribution using the appropriate diagram.

Good luck

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