

Mock Exam

Instructions

- The use of a mobile phone, or any other means of communication, is forbidden.
- Give all the results with a **two decimals** precision.
- Write answers on a **separate** sheet of paper. **Underline** your results.

Section are independent and can be treated separately.

1 Exercice 1

Year	1	2	3	4	5	6	7	8
Advertising expenses	15	48	30	57	36	51	37	30
Revenue	760	160	640	360	800	440	720	520

1. Compute the coefficient of correlation between advertising expenses and revenue. Interpret.
2. Compute the coefficient of correlation between advertising expenses lagged by one year and revenue.
3. What is the share of explained variance ?

2 Exercice II

In a country, 10% of households pay 50% of the total amount of income taxes levied and 50% of households pay no income taxes.

1. Draw the Lorenz curve.
2. Derive the Gini coefficient.

3 Exercice III

In a given sector, we observe the following firms' number of employee and revenue

	Nb of employees	Revenue
Firm 1	10	118
Firm 2	50	151
Firm 3	100	178
Firm 4	500	270
Firm 5	1000	363

1. Plot the data
2. What is the best model ?
3. Estimate the link between the number of employees and revenue. Interpret.
