

Full Name :

Group:

The final Exam

❖ Exercise 1:

Read each statement carefully. Decide if it is true or false.

	<u>Statement</u>	<u>Decision</u>
1	The median is the value that occurs most frequently in a dataset.	
2	Standard deviation measures the spread or variability of data around the mean.	
3	Descriptive statistics involves making predictions about a population based on sample data.	
4	The sum of all relative frequencies in a frequency distribution should always be close to 1 (or 100%).	
5	A frequency polygon is created by joining the midpoints of the tops of the bars in a histogram.	
6	A histogram displays data using bars where the width of the bar represents a class interval and the height represents the frequency.	
7	The intersection of two events A and B , denoted $A \cap B$, means that either A or B or both occur.	
8	A tree diagram can be used to represent the outcomes of a multi-stage experiment.	
9	Permutations are arrangements where the order of selection does not matter.	

❖ Exercise 2:

Let's consider the discrete variable: "Number of books borrowed from a library by 100 students in a semester."

1) Complete the following statistical table

Number of Books (x_i)	0	1	2	3	4	5
Frequency (n_i)	10		35	20		2
$n_i \uparrow$		35			98	

The results are rounded to 10^{-4} .

2) The Mode of this statistical series is

1)	2	2)	3	3)	4
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3) The Arithmetic mean of this statistical series is

1)	1.91	2)	1.92	3)	1.93
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4) The Variance of this statistical series is

1)	1.4936	2)	1.9436	3)	1.4937
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5) The Standard deviation of this statistical series is

1)	1.2222	2)	1.2221	3)	1.2224
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6) The coefficient of variation of this statistical series is

1)	0.6367	2)	0.6366	3)	0.6365
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7) The Absolute deviation mean of this statistical series is

1)	0.848	2)	0.847	3)	0.884
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8) The quadratic mean of this statistical series is

1)	2.672	2)	2.726	3)	2.276
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9) The IQR of this statistical series is

1)	2	2)	3	3)	4
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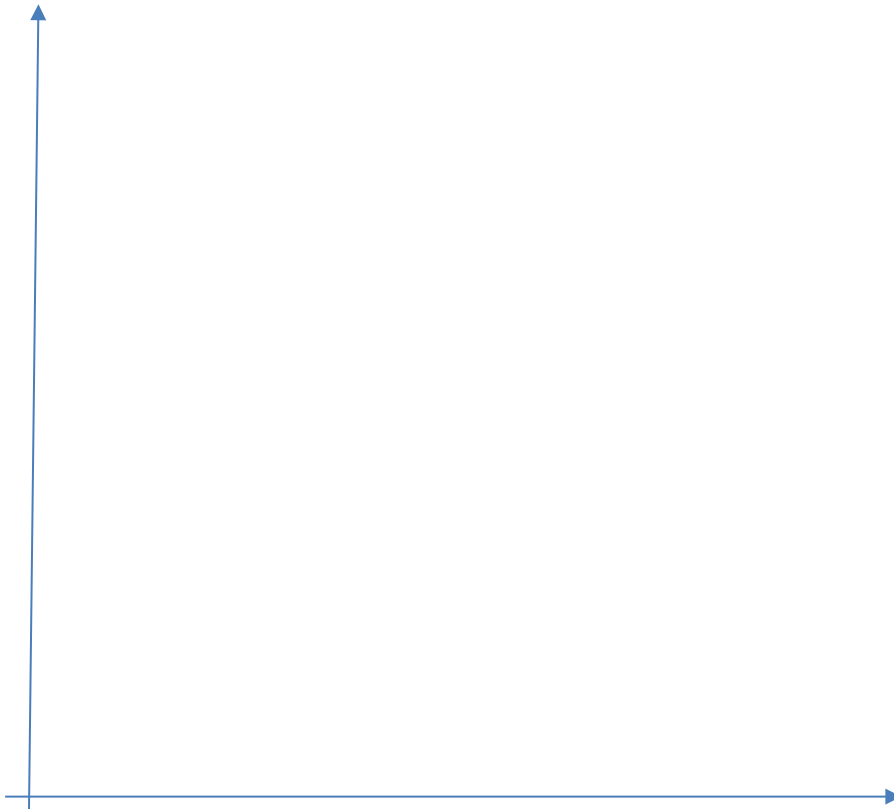
❖ Exercise 3:

The statistical series is represented by the following statistical table

Classes (I_i)	[40; 50[[50; 60[[60; 70[[70; 80[[80; 90[
Frequency (n_i)	25	60	75	30	10
$n_i \uparrow$					
$F_i = f_i \uparrow$					
C_i					

1) Complete the following statistical table.

2) Draw the distribution function



The results are rounded to 10^{-4} .

3) The First quartile of this statistical series is

1)	54.1667	2)	53.1667	3)	54.1669
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4) The Median of this statistical series is

1)	62	2)	63	3)	64
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5) The Third quartile of this statistical series is

1)	68.6605	2)	68.6667	3)	68.6617
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6) The average of this statistical series is

1)	64	2)	63	3)	62
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❖ Exercise 4:

I.

1) In a race with 8 runners, how many different ways can the first, second, and third place medals (Gold, Silver, Bronze) be awarded?

في سباق يضم 8 عدائين، بكم طريقة مختلفة يمكن منح ميداليات المركز الأول والثاني والثالث (ذهبي، فضي، برونزي)؟

1)	512	2)	56	3)	336
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2) You have 5 distinct mathematics books and 3 distinct physics books. In how many ways can you arrange these 8 books on a bookshelf if:

لديك 5 كتب رياضيات مختلفة و 3 كتب فيزياء مختلفة. بكم طريقة يمكنك ترتيب هذه الكتب الثمانية على رف إذا:

a) There are no restrictions? لا يوجد قيود

1)	1440	2)	40320	3)	3600
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b) All the mathematics books must be together and all the physics books must be together?

يجب أن تكون جميع كتب الرياضيات معًا وجميع كتب الفيزياء معًا؟

1)	1440	2)	40320	3)	3600
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II.

Let A , B and C be three events, from the same probability space (Ω, F, P) , such that:

$$P(A) = \frac{2}{5}; P(C) = \frac{1}{2}; P(A \cup B) = \frac{3}{4}; P_A(B) = \frac{3}{10} \text{ and } P_A(C) = \frac{1}{4}$$

1) The value of the conditional probability of \bar{A} knowing C : $(P_C(\bar{A}))$ is

1)	$\frac{4}{5}$	2)	$\frac{3}{5}$	3)	$\frac{2}{5}$
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2) The value of the conditional probability of \bar{A} knowing \bar{C} : $(P_{\bar{C}}(\bar{A}))$ is

1)	$\frac{1}{5}$	2)	$\frac{2}{5}$	3)	$\frac{3}{5}$
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3) The value of the conditional probability of B ($P(B)$).

1)	$\frac{47}{100}$	2)	$\frac{48}{100}$	3)	$\frac{49}{100}$
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