

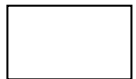


4	مدة الإنجاز	الرياضيات	المادة
9	المعامل	شعبة العلوم الرياضية : " أ " و " ب " - خيار انجليزية	الشعبة أو المسلك

Score and indications of solutions

exercise1	indications of solutions	Score
1-	sub-groupe	0.5
2-	a) Sub vectoriel space	0.5
	b) $\dim E = 2$	0.25
3-	a) the stability for \prime	0.25
	b) $(E, +, \prime)$ is a commutative ring	0.5
4-	a) the stability for T	0.25
	b) homomorphism	0.25
	c) (E^*, T) commutative group	0.25
6-	a) the distributivity	0.5
	b) $(E, +, T)$ is a commutative field	0.25

exercise2	indications of solutions	Score
1-	a) verification	0.5
	b) the two solutions of the equation $1+i$ et $-1+i$	2x0.25
2-	a) the equality	0.75
	b) the equality	0.75
3-	a) the implication	0.5



b)	the implication	0.5
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exercise3			
1-	a)	the values taken by X are : $0, \frac{1}{10}, \frac{2}{10}, \dots, \frac{9}{10}, 1$	1
	b)	Calculus of $P_X = \frac{1}{2} = P_X = \frac{5}{10} = \frac{10!}{5!2^5} = \frac{10!}{5!2^5}$	1
2-		Calculus of $P_X^3 = \frac{9}{10}$	1

exercise4		indications of solutions	Score
1-	a)	continuity on right at 0	0.5
	b)	calculus of $\lim_{x \rightarrow +\infty} f(x) \dots \dots \dots 0.25$	0.75
		calculus of $\lim_{x \rightarrow +\infty} \frac{f(x)}{x} \dots \dots \dots 0.25$	
		B.P with abscisse's axis as direction $\dots \dots \dots 0.25$	
2-	a)	differentiability on right at 0 $\dots \dots \dots 0.5$	0.75
		graphic interpretation $\dots \dots \dots 0.25$	
	b)	differentiability on $]0, +\infty[\dots \dots \dots 0.25$	0.75
		Calculus of $f'(x) \dots \dots \dots 0.5$	
c)	variations of f on $[0, +\infty[\dots \dots \dots 0.5$	1	
	deduction of the inequality $\dots \dots \dots 0.5$		
d)	the plot of the curve according to measure unit	0.5	
3-	a)	f is continuous on $[0, +\infty[$ and the function $x \mapsto \int_0^x f(t)dt$ is the primitive function taken 0 at 1	0.5



	b)	$F'(x) = -f(x)$0.5 variations of F0.5	1
4-	a)	calculus of $\int_x^1 \sqrt{t} \ln(t) dt$ for $x > 0$	0.75
	b)	the equality	0.75
	c)	The area= $\int_0^1 f(x) dx = 4cm^2 = F(0) = 4cm^2 = 4cm^2$ $\lim_{x \rightarrow 0^+} F(x) = \frac{64}{27} cm^2$ since the function is continuous on right at 0. 0.75 for the calculus of the integrale and 0.25 for the measure unit	1
5-	a)	The sequence is bounded.....0.5 The sequence is strictly monotonic0.5	1
	b)	The sequence is convergent.....0.25 $\lim_{n \rightarrow +\infty} u_n = \dots\dots\dots 0.5$	0.75