:(3.5 [illegible]) [illegible]

(1 [illegible] f [illegible] $[1;+\infty[$ [illegible]: $f(x)=1+\sqrt{x-1}$

- [illegible] f [illegible].

(2 [illegible] (U_n) [illegible] N [illegible]: $\begin{cases} U_0=3 \\ U_{n+1}=f(U_n) \end{cases}$

(أ [illegible] (U_n) [illegible] ($2cm$ [illegible])

(ب [illegible] (U_n) [illegible].

(ج [illegible] $(n\in N)$: $2<U_n\leq 3$.

(د [illegible] $(n\in N)$: $U_{n+1}<U_n$.

(ه [illegible] (U_n) [illegible].

(3 [illegible] (V_n) [illegible] N [illegible]: $V_n=\ln(U_n-1)$.

(أ [illegible] (V_n) [illegible] $\frac{1}{2}$.

(ب [illegible] V_n [illegible] n [illegible] U_n [illegible] n [illegible] $\lim_{n\to+\infty}U_n$.

(ج [illegible] P_n [illegible] n [illegible]: $P_n=(U_0-1)(U_1-1)......(U_n-1)$. [illegible] $\lim_{n\to+\infty}P_n$.

:(4 [illegible]) [illegible]

[illegible] ([illegible]) [illegible] : [illegible] 1،2 [illegible] : [illegible]

[illegible] 0 ،2 ،2 [illegible] 4 [illegible].

[illegible] A: "[illegible]".

B: "[illegible]".

C: "[illegible]".

D: "[illegible]"

(1 [illegible] $P(A)$ ، $P(B)$ ، $P(C)$ [illegible]: $P(D)=\frac{1}{6}$.

(2 [illegible] X [illegible].

(أ [illegible]: $P(X=16)=\frac{3}{28}$.

(ب [illegible] X [illegible] $E(x)$.

:(Ďž5) ƘǁƑƙǁƐ ĎžǏƥĎžǂǁƐ

(E)............. $z^3-(4-i)z^2+4(2-i)z+8i=0$: ƚ!ƥǴƶĎž!ƒ C Ŏ5ƧǶƙƶǋ

.(E) ƚ!ƥǴƶĎžĎ! ǚơ ƥƥƶ!ƒ $(-i)$ ƥƥƶ!ƒ ǈĐ ƾƖơƙ (Ď (1

.ǴĎžnjǈŏŏƶƙ ǄĎƱŏ ǈǴŏƖŏƖơ ǈƒƥƥƶ b Ă a ƚŏơ $(z+i)(z^2+az+b)=0$: ýǂƬ!ƒ ǏĎƵ Ǆƙǂƙ (E) ǈĐ ǈŏǶ(Ǆ

.ŎƛĎƛĎž!ƒ ýǂƬ!ƒ ǏĎƵ ýĂĎơ!ƒ Ǆƙǂ Ă (E) ƚ!ƥǴƶĎž!ƒ C Ŏ5 ýơ(Ɯ

$(-i),(1+i)$, ǴnjƖơƒĂ! A,C ,B ƱƖǉ!ƒ ǈǂƙ! $(O;\vec{u},\vec{v})$ ƩǈǴƞƙĎž ƥĎžǴƶƙĎž ĎžĎƶĎž Ï!ǫ ǄĂƪǉĎž Ǆǂ ƧĎž!ƒ ĭĂƙƪĎž!ƒ (2

. Ǆŏƙ Ƨƙ!ƒ ǏĎƵ $(2-2i)$

.ABC ƚĎƛĎž!ƒ ƚƶŏǶƱ ǋƙǉƙƪǫ Ďžƛ Ŏƪǖƒ ýǂƬ!ƒ ǏĎƵ $L=\dfrac{z_B-z_A}{z_c-z_A}$ ƥƥƶ!ƒ Ǆƙǂ (Ď

.$\sqrt{2}(z_A)^{1440}+\left(\dfrac{z_B}{\sqrt{2}}\right)^{2019}-\left(\dfrac{z_c}{2\sqrt{2}}\right)^{2001}=i\sqrt{2}$: ǈĐ ǈŏǶ (Ǆ

. ǴŏƖŏƖơ ƒƥƥƶ $(2+2i)^n$: ƚŏơ n ŎƶŏǶƱ!ƒ ƥƥƶ!ƒ Ďžŏƿ ǈŏƵ (Ɯ

$\{(A;1),(B;-1),(C;-1)\}$: ƚĎƖƛĎž!ƒ ƚĎžĎžƞ!ƒ ƠƞƧĎž D ƚƖơǕ ǈŏƵ (ƥ

.ýŏĎƶƙ!ƒ ƴĎž Þ$ABDC$ ŎƵǴǶƧ!ƒ ƚƶŏǶƱ ŎNj Ǵž (ǉ

$\left|z-\dfrac{3}{2}+\dfrac{1}{2}i\right|=\dfrac{\sqrt{10}}{2}$:ùùǶ ƚ5Ƨƶž!ƒ ĭĂƙƪĎž!ƒ ǈĎž $M(z)$ ƱƖǉ!ƒ ƚƵĂĎžƞĎž (Γ) ǈǂƙ! (Ă

. (Γ) ƚƵĂĎžƞĎž!ƒ Ï!ǫ ŎĎžƙǈƙ A ƚƱƖǉ!ƒ ǈĐ ǈŏǶ -

.ǴnjƑƬǈĐ Ďžƛ ƖƨŏĎžĎž!ƒ ǴNjƧƮǴǉƵ ƥƥơ Þ (Γ) ƚƵĂĎžƞĎž!ƒ ƚƶŏǶƱǴĎž -

:(Ďž7.5) ƯǴƐƥǁƐ ĎžǏƥĎžǂǁƐ

. $g(x)=x^2+2x+\ln(x+1)$:ùùǶ $]-1;+\infty[$ ǏĎƵ ƚ5Ƨƶž!ƒ ƚ!ƒƥ!ƒg /I

. ǴnjƙƒƧŏƺƙ ýĂƥƞ ýǂƬ Ăg ƚ!ƒƥ!ƒ ƘƒƧŏƺƙ ƩƧƥĐ (1

. $g(x)$ ƖƧǴƬǫ ǋƙǉƙƪƒ Ďžƛ Ü $g(0)$ ǄƪơĐ (2

$f(x)=x-1-\dfrac{\ln(x+1)}{x+1}$: ùùǶ $]-1;+\infty[$ ǏĎƵ ƚ5ƧƶĎž!ƒf ƚ!ƒƥ!ƒ ǈǂƙ! /II

$(O;\vec{i},\vec{j})$ ƩǈǴƞƙĎž Ă ƥĎžǴƶƙĎž ĎžĎƶĎž Ï!ǫ ǄĂƪǉĎž!ƒ ĭĂƙƪĎž!ƒ Ŏ5 ŎǈǴŏǶ!ƒ ǴnjĎŏƛĎžƙ(C_f)

. Ǵŏƪƥǈnj ƚƞŏƙǉ!ƒ Ƨƪ5 Ă $\lim\limits_{x\to -1} f(x)$ ǄƪơĐ (Ǆ. $\lim\limits_{x\to+\infty} f(x)$ ǄƪơĐ (Ď (1

$f'(x)=\dfrac{g(x)}{(x+1)^2}$: $]-1;+\infty[$ ǈĎž x ýǂ ýƞĐ ǈĎž ƝǈĐ ǈŏǶ (Ď (2

.ǴnjƙƒƧŏƺƙ ýĂƥƞ ýǂƬ ĎžƛÜ f ƚ!ƒƥ!ƒ Ƨŏƺƙ ǉǴƞƙƒ ǋƙǉƙƪƒ(Ǆ

.Ǵŏƪƥǈnj ƚƞŏƙǉ!ƒ Ƨƪ5 Ă $\lim\limits_{x\to+\infty}[f(x)-(x-1)]$ ǄƪơĐ (Ď (3

. $(\Delta): y=x-1$ ĎžŏƖƙƪĎž!ƒ ƴĎž (C_f) ù! ŎǶƪǉ!ƒ ƴƲĂ!ƒ ƩƧƥĐ (Ǆ

. (C_f) ƐƬǈĐ Ďžƛ $1,3<\beta<1$, Ü $-0,6<\alpha<-0,5$: ƚŏơβ Üα ǈŏĎơ ýǶƖƙ $f(x)=0$ ƚ!ƥǴƶĎž!ƒ ǈĐ ǈŏǶ (Ɯ

.ƾǶƪ!ƒ ĎžĎƶĎž!ƒ Ŏ5 ŎǈǴŏǶ!ƒ ǴnjĎŏƛĎžƙ (C_h) Ü $h(x)=x-1-\dfrac{\ln|x+1|}{x+1}$: ùùǶ $\mathbb{R}-\{-1\}$ ǏĎƵ ƚ5ƧƶĎž!ƒ ƚ!ƒƥ!ƒ h ǈǂƙ! /III

.Ǵŏƪƥǈnj ƚƞŏƙǉ!ƒ Ƨƪ5 Ă $\mathbb{R}-\{-1\}$ ǈĎž x ýǂ ýƞĐ ǈĎž$h(-2-x)+h(x)$ ǄƪơĐ (1

.(ǴƬǈǕƒ ƚƖŏƧƱ ƟƧƬ ƴĎž) (C_h) ƐƬǈĐ (Ď (2

. x ýĂnjƞĎž!ƒ Ƙƒǩ $h(x)=m$ ƚ!ƥǴƶĎž!ƒ ýĂĎơ ƖƧǴƬǫ Ă ƥƥƶ mŎƖŏƖơ!ƒ ƱŏƪĂ!ƒ Ďžŏƿ ǄƪơǴŏǴǶ ƫƥǴǉ (Ǆ