[illegible]

[illegible] 2016 | [illegible]

2016/05/09 | [illegible]

[illegible] 03 [illegible] 30 | [illegible]

[illegible]

[illegible]

[illegible] (05 [illegible])

$(O;\vec{i},\vec{j},\vec{k})$ [illegible]

[illegible] (S) [illegible] (P) [illegible]:

$(P): -2x+2y-z+\alpha=0 \qquad (S):\ x^2+y^2+z^2-4z=0$

I) -1 [illegible] W [illegible] (S) [illegible] r.

-2 [illegible] α [illegible] (P) [illegible] (S).

II) [illegible] $\alpha=-1$

-1 [illegible] (Δ) [illegible] (P) [illegible] W.

-2 [illegible] W [illegible] (P).

-3 [illegible] (P) [illegible] (S) [illegible] (ζ) [illegible].

-4 [illegible] A [illegible] B [illegible] (Δ) [illegible] (S).

-5 [illegible] A [illegible] B [illegible] (ζ).

-6 [illegible] (S) [illegible] $z=1$ [illegible] $z=3$.

[illegible] (04.5 [illegible])

I) [illegible] $(O;\vec{i},\vec{j})$ [illegible] M [illegible] $z=x+iy$

[illegible] $Z=\frac{z-1-2i}{z-1}$

-1 [illegible] $Re(Z)=\frac{(x-1)^2+(y-1)^2-1}{(x-1)^2+y^2}$ [illegible] M [illegible] Z [illegible].

II) [illegible] A, B, C [illegible] D [illegible]: $z_1=1+i$ $z_2=1+2i$ $z_3=2+i$ $z_4=i$

-1 [illegible] z_1-z_2 , z_1-z_3 [illegible] z_1-z_4

-2 [illegible] B, C [illegible] D [illegible] $(\wp)$ [illegible].

2 ȼǫǤÊȹȿ A ȻÂõȀɳ ƟõȀƠ h ȼȯǑǂȍ (III

-1 ȆǫǑȁ ǥǿǤȁǤǬǟ ǤǑõȀƫȁ ȍȃǑǶ ȌǬ h. Ż B'ȆǮȘǑ B ȏǿǮȍ ǥǿǤǑȘǟ ƟõȀǤǑǬǟ h.

-2 ƙȝ ǥǤǬȼ E Ǥǥ ȉǭǑ ȷǮǑ ƟȝȀǬȀǟ $CB'BE$ ǤǟǬǮǑǫȁ Ȁ ȵȲȒǑ.

ǤǓǑǟ 04.5) :ǬǟȀǯǟ ȼȉȀǬǟ)

(u_n) ǥǿǤȁǫǑǬǑ ǤǭǤǑǫǟ ǤǯǤǶ : $u_0 = \sqrt{2}$ ȼȫȘ ǑǮǑǑ ǑõȀ ǤǴǟ n ƟǶǤǟ : $u_{n+1} = \sqrt{\frac{1}{2}{u_n}^2 + 8}$.

-1 ǑǫǑǤ ǟǬǟ u_1, u_2 ȘǑ u_3.

-2 ǟǬǯǟ ǑǬǟǤǬǥ ȌǬ ǑǴǟ ǤǑǥǤ ǑõȀ ǤǴǟ n : $\sqrt{2} \leq u_n \leq 4$.

-3 ǑǤǶ ȷǑ ǥǿǤȁǬǑ (u_n) ǤǬǟǤǬǟ. Ż ǤǟǤǬǟ ǤǑȷ ǤǤǬǤǬǑ.

-4 ǭȒǑ ȼǫ ǑõȀ ǤǴǟ n ƟǶǤǟ : $v_n = {u_n}^2 - 16$

(ǥ ǑǶ ȷǑ (v_n) ǥǿǤȁǬǑ ǤǬǟǤǬǟ ǬǟǤǬǟ ƙǬǤ ǤǬǤǬǤǬǤ ǬȘǬǟ.

(ǟ ƙǬ ǑǬǤ ȼȫ ǑǴǟ ǑõȀ ǤǴǟ n : $|u_n - 4| \leq \frac{|v_n|}{4}$.

(ǯ ǑǫǑǤ $\lim_{n\to\infty} v_n$ ȘǤǬǟ $\lim_{n\to\infty} u_n$

(ǟ ǑǫǑǤ ǤǬǤǬǟ S_n ǤǬǴ n ǭǤǬ : $S_n = {u_0}^2 + {u_1}^2 + \cdots ... + {u_n}^2$

ǤǓǑǟ 06) :ǭǤǬǟ ȼȉȀǬǟ)

/. ǭǬǬ g ǤǬǟǬǟ ǤǬǟ $\mathbb{R}$ ǬǬǬǬ: $g(x) = 1 + 4xe^{2x}$

.1 ǟǿǟǤ ǬǤǬǤ Ż g ǤǬǬǟ ǬǬǤǬǬ

.2 ǟǬǬǟ ǤǬǤǬǬǟ $g(x)$ ȼǫ ǑõȀ ǤǴǟ x

/II. ǭǬǬ f ǤǬǟǬǟ ǤǬǟ $\mathbb{R}$ ǬǬǬǬ: $f(x) = (2x+1)e^{2x} + x + 1$

ȘǬ (C) ǤǬǤǬǬǟ ǬǬǤǬǬǟ Ż ǬǬǬǬǟ ǤǬǬǬǬǟ ǬǬ ǬǬǬǬ ǬǬǬǬǬǬǟ $(o;\vec{i};\vec{j})$ ($2cm$ ǤǬǬǟ)

.1 ǑǫǑǤ $\lim_{x\to-\infty} f(x)$ Ǖ $\lim_{x\to+\infty} f(x)$

.2 ƙǬ ǑǬ $f'(x) = g(x) + 4e^{2x}$ Ż ǟǬǬǟ ǬǬǬǬ ǬǬǬǬǬ ǤǬǬǬǟ f Ș ǬǬǬǤ ǬǬǬǬǬǬ.

.3 ǟ. ƙǬ ǑǬ (Δ) ǬǬ ǤǬǬǬǬǬǟ $y = x + 1$ ǟǬǬǬǬǟ ǬǬǬǬǬǬ ǤǬ (C) ǬǬǬ $-\infty$

ǟ. ǟǬǬǟ ǭǬǬǬǟ ǬǬǬǬǬǟ (C) Ș ǬǬǬǬǟ (Δ)

.4 ƙǬ ǑǬ (C) ǬǬǬ ǤǬǬ ǬǬǬǬ ǬǬǬǬ ǬǬǬǬ ǬǬǬǬǬǬ

.5 ƙǬ ǑǬ ǬǬǬǬ ǬǬǬǬ ǬǬǬǬǬǬ Ż ǤǬǬǬ ǤǬǬǬǬ ǬǬǬǬǬ $-1 \leq \alpha \leq \frac{1}{2}$.

.6 ǟǬǬ ǬǬǬǬǬ (Δ) Ș ǬǬǬǬ (C)

.7 ǟ. ǬǬǬǬǬǬǟ ǬǬǬǬǬǬ ǬǬǬǬǬ ǟǬǬǬǬǬǬ ǑǫǑǤ ǬǬǬǬǬ $\int_{-\frac{1}{2}}^{0} (2x+1)e^{2x}dx$

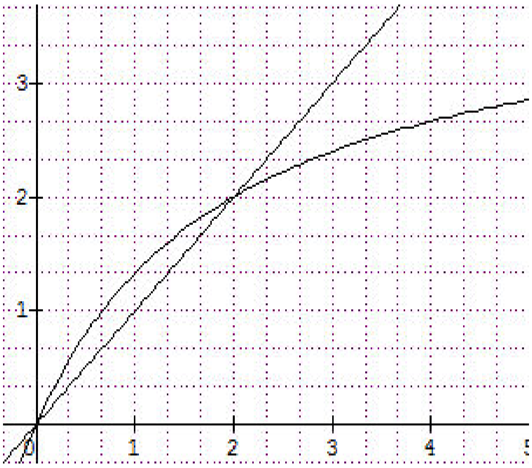
ǟ. ǑǫǑǤ ǬǬǬǬǬǟ A ǬǬǬǬǬǟ ǬǬǬǬǬǬ ǬǬǬ (C) Ș ǬǬǬǬǬǟ (Δ) ǬǬǬǬǬǬǬǟ ǬǬǬǬǬǬǟ $x = \frac{-1}{2}$ Ș $x = 0$

[illegible]

[illegible] (04.5 [illegible]) :

$(O;\vec{i},\vec{j})$ [illegible]

I) [illegible] f [illegible] $[0;+\infty[$ [illegible] : $f(x)=\frac{4x}{x+2}$ [illegible] (C) [illegible]:



1- [illegible] f [illegible] $[0;+\infty[$.

2- [illegible] (C) [illegible] (Δ) [illegible] $y=x$.

II) (u_n) [illegible] : $\begin{cases} u_0 = 4 \\ u_{n+1} = f(u_n); n\in\mathbb{N} \end{cases}$

1) [illegible] : u_1, u_2, u_3 [illegible] u_4 [illegible].

[illegible]

2) [illegible] n [illegible] $u_n > 2$.

[illegible] (u_n) .

[illegible] (u_n) [illegible] .

3) [illegible] n [illegible] $|u_{n+1}-2| \le \frac{1}{2}|u_n - 2|$

[illegible] n [illegible] $|u_n - 2| \le \left(\frac{1}{2}\right)^{n-1}$ [illegible] $\lim_{n\to+\infty} u_n$.

[illegible] (4.5 [illegible]) :

$(O;\vec{i},\vec{j},\vec{k})$ [illegible]

[illegible] $A(0;0;1)$, $B(2;2;-1)$, $C(-2;-7;-7)$ [illegible] $D(-3;4;4)$.

[illegible] (P) [illegible] : $\begin{cases} x = 1+3\alpha+\beta \\ y = 1-2\alpha \\ z = 4+\alpha+\beta \end{cases}$ [illegible] α [illegible] β [illegible] .

1) [illegible] A [illegible] B [illegible] C [illegible].

[illegible] $\vec{\eta}(3;-2;1)$ [illegible] (ABC) [illegible].

2) [illegible] (P) [illegible] (P) [illegible] (ABC) [illegible] (P) [illegible].

[illegible] (ABC) [illegible] (P) [illegible] (Δ) [illegible] : $\begin{cases} x = -2+t \\ y = -7+4t \\ z = -7+5t \end{cases}$ $; t\in\mathbb{R}$

[illegible] D [illegible] (ABC) [illegible] (P) [illegible] D [illegible] (Δ) .

3) [illegible] (Q) [illegible] D [illegible] (ABC) [illegible] (P) .

[illegible] (Q) [illegible].

[illegible] (Q) [illegible] (ABC) [illegible] (P) [illegible] H [illegible] H .

[illegible] (04.5) :[illegible]

I. [illegible] $\mathbb{C}$ [illegible] z [illegible]: $(z^2+2\sqrt{3}z+4)(z^2-4z+8)=0$.

II. [illegible] $\left(O,\vec{u},\vec{v}\right)$ [illegible] A, B, C [illegible]

$z_A = 2-2i$ [illegible] $z_B = 2+2i$ [illegible] $z_C = -\sqrt{3}-i$

(1 [illegible] z_A [illegible] z_C [illegible] $\dfrac{z_C}{z_A}$

(2 [illegible] $\dfrac{z_C}{z_A}$ [illegible] $\cos\left(\dfrac{17\pi}{12}\right)$ [illegible] $\sin\left(\dfrac{17\pi}{12}\right)$

(3 [illegible] n [illegible] $\left(\dfrac{z_C}{z_A}\right)^n$ [illegible] . [illegible] $\left(\dfrac{z_C}{z_A}\right)^{2016}$.

III. [illegible] r [illegible] Ω [illegible] $\omega=i$ [illegible] B [illegible] B' [illegible] $z_{B'}=1-i$

(1 [illegible] r .

(2 [illegible] $\dfrac{z_B}{z_{B'}}$ [illegible] $OB'B$.

(3 [illegible] O, B', B [illegible] Ω [illegible] .

[illegible] (06.5) : [illegible]

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

(C) [illegible] f [illegible] $(o;\vec{i};\vec{j})$

I. .1 (أ [illegible] $\lim\limits_{x \to -1^{>}} f(x)$ [illegible]

(ب [illegible] $\lim\limits_{x\to+\infty} f(x)$

.2 [illegible] x [illegible] $]0;+\infty[$ [illegible] g [illegible] $g(x)=x^2-1+\ln x$

(أ [illegible] g [illegible] $]0;+\infty[$

(ب [illegible] $g(1)$ [illegible] $g(x)$ [illegible]

.3 (أ [illegible] x [illegible] $]-1;+\infty[$: $f'(x)=\dfrac{g(x+1)}{(x+1)^2}$

(ب [illegible] f [illegible] $[0;+\infty[$ [illegible] $]-1;0]$ [illegible] f

.4 (أ [illegible] (Δ) [illegible] $y=x$ [illegible] (C)

(ب [illegible] (C) [illegible] (Δ)

.5 [illegible] (C) [illegible] (Γ) [illegible] (Δ) [illegible].

.6 [illegible] (Δ) [illegible] (Γ) [illegible] (C)

.7 [illegible] m [illegible] $m(x+1)+\ln(x+1)=0$

II. α [illegible] $-1<\alpha<0$

.1 [illegible] α [illegible] $A(\alpha)$ [illegible] (C) [illegible] (Δ) [illegible]:

$x=\alpha$ [illegible] $x=1$