1. Umumiy hadi $u_n = 1 + \frac{1}{n}$ bo‘lgan sonli qatorni toping .

======

# $\frac{2}{1} + \frac{3}{2} + \frac{4}{3} + \frac{5}{4} + \cdots$

======

$\frac{1}{1} + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \cdots$

======

$1 + \frac{1}{2} + \frac{2}{3} + \frac{3}{4} + \cdots$

======

$1 - \frac{1}{2} + \frac{2}{3} - \frac{3}{4} + \cdots$

2. *n*-xususiy yig‘indisi $S_n$ bo‘lgan sonli qator qaysi shartda uzoqlashuvchi bo‘lmaydi?

======

# ) ko‘rsatilgan barcha hollarda sonli qator uzoqlashuvchi bo’ladi

======

$\lim_{n \to \infty} S_n = -\infty$

======

$\lim_{n \to \infty} S_n = +\infty$

======

$\lim_{n \to \infty} S_n = \pm\infty$

3 $\frac{1}{a}+\frac{1}{a^2}+....+\frac{1}{a^n}+....$ sonli qator qaysi shartda yaqinlashuvchi bo‘ladi ?

======

#$|a|<1$

======

$|a|\neq 0$

======

$|a|=1$

======

$|a|\neq 1$

$1+\frac{1}{3}+\frac{1}{3^2}+...+\frac{1}{3^{n-1}}+.....$ sonli qator yig‘indisini toping .

======

# 1.5

======

2

======

1.33

======

1

$\frac{1}{1\cdot 3}+\frac{1}{2\cdot 4}+\frac{1}{3\cdot 5}+\cdots+\frac{1}{n(n+2)}+\cdots$ sonli qator yig‘indisini toping.

======

#0.75 .

======

1

======

e

======

П/2

Musbat hadli $\lim\limits_{n\to\infty} u_n$ sonli qatorni Dalamber alomati orqali tekshirishda $\lim\limits_{n\to\infty} \frac{u_{n+1}}{u_n} = d$ bo‘lsa, quyidagi tasdiqlardan qaysi biri noto‘g‘ri ?

======

# barcha tasdiqlar to‘g‘ri .

======

$d$<1 bo‘lsa qator yaqinlashuvchi

======

$d$>1 bo‘lsa qator uzoqlashuvchi .

======

$d$=1 bo‘lsa qator yoki yaqinlashuvchi, yoki uzoqlashuvchi

Quyidagi musbat hadli sonli qatorlardan qaysi birining yaqinlashuvini Dalamber alomati orqali aniqlab bo‘ladi ?

======

# $\sum\limits_{n=1}^{\infty} \frac{n}{3^n}$

======

$$\sum_{n=1}^{\infty} \frac{n}{1+n^2}$$

======

$$\sum_{n=1}^{\infty} \frac{1}{1+2n}$$

======

$$\sum_{n=1}^{\infty} \frac{n}{(1+n)^2}$$

Umumiy hadi $u_n=(3n+1)/2^n$ bo‘lgan sonli qator Dalamber alomati orqali tekshirilganda $d = \lim_{n\to\infty} (u_{n+1}/u_n)$ qiymati va qator yaqinlashuvi haqidagi tasdiq qaysi javobda to‘g‘ri ko‘rsatilgan ?

======

# $d$=0.5 va qator yaqinlashuvchi

======

$d$=1 va qator uzoqlashuvchi

======

$d$=0 va qator yaqinlashuvchi .

======

$d$=∞ va qator uzoqlashuvchi .

1. Umumlashgan garmonik qator $1+\frac{1}{2^p}+\frac{1}{3^p}+\cdots+\frac{1}{n^p}+\cdots$
$p$ parametrning qanday qiymatlarida yaqinlashuvchi bo‘ladi ?

======

# $p$>1

======

$p \geq 1$

======

$p < 1$

======

$p \leq 1$

1. Umumlashgan garmonik qator $1+\frac{1}{2^p}+\frac{1}{3^p}+\cdots+\frac{1}{n^p}+\cdots$ uzoqlashuvchi bo‘ladigan $p$ parametrning barcha qiymatlari qayerda to‘liq va to‘g‘ri ko‘rsatilgan ?

======

#$p \leq 1$

======

$p \leq 0$

======

$p \geq 0$

======

$p \neq 0$

Mavhum birlik $i$ uchun qaysi tenglik o‘rinli emas?

======

#barcha tengliklar to’g’ri

======

$i^{4n}=1$

======

$i^{4n+1}=i$

======

$i^{4n+2}=-1$

Mavhum birlik $i$ uchun qaysi tenglik o‘rinli ?

======

#$i^{4n}=1$

======

$i^{4n}=i$

======

$i^{4n}=-1$

======

$i^{4n}=-i$

$z_1=x_1+y_1i$ va $z_2=x_2+y_2i$ kompleks sonlar qaysi shartda teng deyiladi?

======

# $x_1=x_2$ , $y_1=y_2$

======

$x_1 = x_2$

======

$x_1 = x_2$ , $y_1 \neq y_2$

======

$x_1 \neq x_2$ , $y_1=y_2$

Quyidagi tengliklarning qaysi birida $z_1=x_1+y_1i$ va $z_2=x_2+y_2i$ kompleks sonlar teng bo‘lmasligi mumkin?

======

#barcha hollarda $z_1=z_2$ bo’ladi.

======

$x_1 - x_2 =0$, $y_1 -y_2=0$

======

$(x_1 - x2)^2-(y_1 -y2)^2 =0$

======

$(x_1 - x2)^2+(y_1 - y2)^2 =0$

$z_1=2a-4i$ va $z_2=6+b^2i$ kompleks sonlar $a$ va $b$ parametrlarning qaysi qiymatida teng bo‘ladi?

======

# to’g’ri javob keltirilmagan .

======

$a=3$, $b=\pm 2$ .

======

$a=3$, $b=-2$

======

$a=3$, $b=2$

$z_1=x_1+iy_1$ va $z_2=x_2+iy_2$ kompleks sonlarni qo‘shish amalining ta’rifi qayerda to‘g‘ri ifodalangan?

======

# $z_1+z_2=(x_1+x_2)+i(y_1+y_2)$

======

$z_1+z_2=(x_1+y_2)+i(x_2+y_1)$

======

$z_1+z_2=(y_1+y_2)+i(x_1+x_2)$

======

$z_1+z_2=(x_2+y_1)+i(x_1+y_2)$

$z_1=5+3i$ va $z_2=-1+2i$ kompleks sonlarning $z_1+z_2$ yig‘indisini toping.

======

#$4+5i$

======

$6+5i$

======

5+4*i*

======

8+5*i*

Kompleks sonlarni qo‘shish amali uchun quyidagi tengliklardan qaysi biri o‘rinli bo‘lmaydi ?

======

# $z+\overline{z}=0$

======

$z_1+z_2= z_2+z_1$

======

$z_1+(z_2+z_3)=(z_1+z_2)+z_3$

======

$z+z=2z$

$\sum_{n=1}^{\infty}\frac{1}{n(n+1)}$ sonli qator uchun $S_{10}$ xususiy yig‘indining qiymatini toping.

======

#10/11

======

1/10

======

1/110

======

1

α parametrning qanday qiymatida

$$f(x,y)=\begin{cases}\dfrac{x^2-y^2}{x-y}, & x\neq 1 \text{ va } y\neq 1;\\ \alpha, & x=1 \text{ va } y=1\end{cases}$$

funksiya $M_0(1, 1)$ nuqtada uzluksiz bo‘ladi?

======

# 2

======

1

======

0

======

-1

1. ***Ta’rifni to‘ldiring:*** $z=x+iy$ ko‘rinishdagi ifoda kompleks son deb ataladi. Bunda $i$−mavhum birlik ($i^2=-1$ ) va $x,y$ − ··· sonlarni ifodalaydi.

======

# haqiqiy

======

natural

======

butun

======

irratsional .

Agar $n$-ixtiyoriy natural son bo‘lsa, unda mavhum birlik $i$ uchun qaysi tenglik o‘rinli ?

======

#$i^{2n}=(-1)^n$

======

$i^{2n}=-i$

======

$i^{2n}=1$

======

$i^{2n}=i$

$z=-3+4i$ kompleks son uchun Rez nimaga teng?

======

# -3

======

4

======

3

======

-4

$z_1=3(\cos 45^0+i\sin 45^0)$ , $z_2=4(\cos 30^0+i\sin 30^0)$ kompleks sonlarning $z=z_1\cdot z_2$ ko‘paytmasini toping.

======

# $z=12(\cos 75^0+i\sin 75^0)$

======

$z=5(\cos 75^0+i\sin 75^0)$

======

$z=12(\cos 15^0+i\sin 15^0)$

======

$z=5(\cos 15^0+i\sin 15^0)$

Agar $z_1+z_2=-3+i$ va $z_1-z_2=7-7i$ bo‘lsa, $z_2$ nimaga teng?

======

#$-5+4i$

======

5−2*i*

======

2−3*i*

======

2+3*i*

$z = \frac{x^2 - y^2}{x^2 + y^2}$ funksiyaning O(0,0) nuqtadagi limitini toping.

======

# Mavjud emas

======

1

======

2

======

1/2

*n*-xususiy yig‘indisi $S_n$ bo‘lgan yaqinlashuvchi sonli qatorning *S* yig‘indisi qanday aniqlanadi ?

======

$S = \lim_{n \to \infty} S_n$

#

======

$S = \lim_{n \to \infty} nS_n$

======

$$S = \lim_{n \to \infty} \frac{S_n}{n}$$

======

$$S = \lim_{n \to \infty} \frac{S_n}{S_{n-1}}$$

1. Ikki o‘zgaruvchili $z = f(x,y)$ funksiya qanday geometrik obyektni ifodalaydi?

======

#fazodagi sirtni

======

tekislikdagi to‘g‘ri chiziqni

======

tekislikdagi egri chiziqni

======

fazodagi tekislikni

$z_1=x_1+iy_1$ va $z_2=x_2+iy_2$ kompleks sonlarni ayirish amalining ta’rifi qayerda to‘g‘ri ifodalangan?

======

#$z_1-z_2=(x_1-x_2)+i(y_1-y_2)$

======

$z_1-z_2=(x_1-y_2)+i(x_2-y_1)$

======

$z_1-z_2=(x_2-y_1)+i(x_1-y_2)$

======

$z_1-z_2=(x_1-y_1)+i(x_2-y_2)$

$z_1=x_1+iy_1$ va $z_2=x_2+iy_2$ kompleks sonlarni ko‘paytmasini hisoblash formulasi qayerda to‘g‘ri ifodalangan?

======

#$z_1 \cdot z_2 = x_1 x_2 - y_1 y_2 + i(x_1 y_2 + x_2 y_1)$

======

$z_1 \cdot z_2 = x_1 x_2 - y_1 y_2 + i(x_1 x_2 + y_1 y_2)$

======

$z_1 \cdot z_2 = x_1 x_2 + y_1 y_2 + i(x_1 x_2 - y_1 y_2)$

======

$z_1 \cdot z_2 = x_1 x_2 + i y_1 y_2$

$z_1 = 5+3i$ va $z_2 = -1+2i$ kompleks sonlarning $z_1 \cdot z_2$ ko‘paytmasini toping.

======

# $-11+7i$

======

$15-2i$

======

$-5+6i$

======

$10-3i$

$f(x,y) = \sqrt{9 - x^2 - y^2}$ funksiyaning D{$f$} aniqlanish sohasini toping.

======

# Radiusi R=3 va markazi O(0,0) nuqtada joylashgan doira;

======

Tomoni $a$=3 va markazi O(0,0) nuqtada joylashgan kvadratning tashqarisidan iborat soha;

======

Tomoni $a$=3 va markazi O(0,0) nuqtada joylashgan kvadrat;

======

Radiusi R=3 va markazi O(0,0) nuqtada joylashgan aylananing tashqarisidan iborat soha;

Qaysi shartda $\sum_{k=1}^{\infty} u_k$ sonli qator yaqinlashuvchi bo‘ladi ?

======

# $\lim_{n\to\infty} u_n$ mavjud emas

======

$\lim_{n\to\infty} u_n < 0$

======

$\lim_{n\to\infty} u_n > 0$

======

$\lim_{n\to\infty} u_n \neq 0$

Musbat hadli $\sum_{n=1}^{\infty} u_n$ sonli qatorni Dalamber alomati orqali tekshirish uchun qaysi limit hisoblanadi ?

======

# $\lim_{n\to\infty} \frac{u_{n+1}}{u_n}$

======

$\lim_{n\to\infty} \sqrt[n]{u_n}$

======

$$\lim_{n\to\infty}(u_{n+1}-u_n)$$

======

$$\lim_{n\to\infty}(u_{n+1}+u_n)$$

Musbat hadli $\lim_{n\to\infty}\sqrt{u_n}$ sonli qatorni Koshi alomati orqali tekshirishda $\lim_{n\to\infty}\sqrt[n]{u_n}=k$ bo‘lsa, quyidagi tasdiqlardan qaysi biri noto‘g‘ri ?

======

#) barcha tasdiqlar to‘g‘ri

======

$k$<1 bo‘lsa qator yaqinlashuvchi

======

$k$>1 bo‘lsa qator uzoqlashuvchi

======

$k$=1 bo‘lsa qator yaqinlashuvchi ham, uzoqlashuvchi ham bo‘lishi mumkin

Umumlashgan garmonik qatorning umumiy $u_n$ hadini ko‘rsating

======

# $u_n=\frac{1}{n^p}$

======

$$u_n=\frac{1}{p+n}$$

======

$$u_n = \frac{p^n}{n}$$

======

$$u_n = \frac{1}{p^n}$$

Umumiy hadi $u_n=[(2n+3)/(4n+5)]^n$ bo‘lgan sonli qator Koshi alomati yordamida

$$k = \lim_{n\to\infty} \sqrt[n]{u_n}$$

tekshirilganda limit qiymati va qator yaqinlashuvi haqidagi tasdiq qaysi javobda to‘g‘ri ko‘rsatilgan ?

======

#$k$ =0.5 va qator yaqinlashuvchi

======

$k$=2 va qator uzoqlashuvchi

======

$k$=1 va qator uzoqlashuvchi

======

$k$=0 va qator yaqinlashuvchi

$z = x+iy$ kompleks son uchun Rez qanday aniqlanadi?

======

# Rez=$x$

======

Rez=$y$

======

Rez=$x+y$

======

to’g’ri javob keltirilmagan

*z =x+iy* kompleks sonning moduli |*z*| qanday aniqlanadi?

======

# $|z| = \sqrt{x^2 + y^2}$

======

$|z| = x^2 + y^2$

======

$|z| = \sqrt{x^2 - y^2}$

======

$|z| = |x + y|$

*z =x+iy* kompleks sonning moduli |*z*| qanday aniqlanadi?

======

# $|z| = \sqrt{x^2 + y^2}$

======

$|z| = x^2 + y^2$

======

$|z| = \sqrt{x^2 - y^2}$

======

$$|z| = |x + y|$$

1. $z = x+iy$ kompleks songa qo‘shma kompleks son $\bar{z}$ qanday aniqlanadi?

======

#$x-iy$

======

-$x-iy$

======

$-x+iy$

======

$y+ix$

1. $z_1=3(\cos45^0+i\sin45^0)$ , $z_2=4(\cos30^0+i\sin30^0)$ kompleks sonlarning $z=z_1/z_2$ bo‘linmasini toping.

======

$z=12(\cos75^0+i\sin75^0)$

======

$z=4(\cos15^0+i\sin15^0)/3$

======

#$z=3(\cos15^0+i\sin15^0)/4$

======

$z=12(\cos15^0+i\sin15^0)$

$z_0=2(\cos15^0+i\sin15^0)$ kompleks son bo‘yicha $z=(z_0)^5$ kompleks sonni toping.

======

# $z=32(\cos75^0+i\sin75^0)$

======

$z=32(\cos15^0+i\sin15^0)$

======

$z=32(\cos 20^0+i\sin 20^0)$

======

$z=10(\cos 75^0+i\sin 75^0)$

$\sum_{n=1}^{\infty}\frac{1}{n(n+1)}$ sonli qatorning $S$ yig‘indisini toping .

======

#S =1

======

S =2

======

S =-2

======

S =-1

$n$-xususiy yig‘indisi $S_n$ bo‘lgan sonli qator qaysi shartda yaqinlashuvchi deyiladi ?

======

# $\lim_{n\to\infty} S_n = C, |C| < \infty$

======

$\lim_{n\to\infty} S_n = -\infty$

======

$\lim_{n\to\infty} S_n = \infty$

======

$$\lim_{n\to\infty} S_n = \pm\infty$$

$z = x+iy$ kompleks son uchun Imz qanday aniqlanadi?

======

# Im$z=y$

======

Im$z=x$

======

Im$z=x+y$

======

to’g’ri javob keltirilmagan

Ta’rifni to‘ldiring: Ikki o‘zgaruvchili $z= f(x,y)$ funksiyaning sath chizig‘i deb ⋯ tenglama bilan aniqlanadigan chiziqqa aytiladi .

======

#$f(x,y)=C$

======

$f(x,0)=C$

======

$f(C,y)=0$

======

$f(x,C)=0$

1. $z=x^2+y^2+2xy$ funksiyaning $y$ bo‘yicha $D_y z$ xususiy orttirmasini toping.

======

#$D_y z=2(x+y)Dy+Dy^2$

======

$D_y z=2x+2y+2$ (D$x$+D$y$)

======

$D_y z=2(Dx+Dy)$

======

$D_y z=2(xDx+ yDy +Dx\times Dy)$

Umumiy hadi $u_n = 1 + \frac{1}{n}$ bo‘lgan sonli qatorni toping .

======

# $\frac{2}{1}+\frac{3}{2}+\frac{4}{3}+\frac{5}{4}+\cdots$

======

$\frac{1}{1}+\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\cdots$

======

$1+\frac{1}{2}+\frac{2}{3}+\frac{3}{4}+\cdots$

======

$1-\frac{1}{2}+\frac{2}{3}-\frac{3}{4}+\cdots$

1. $z=f(x,y)$ funksiya $M_0(x_0,y_0)$ nuqtada differensiallanuvchi bo‘lishi uchun qaysi shart talab etilmaydi?

======

#$M_0(x_0,y_0)$ nuqta va uning biror atrofida $f'_x$ , $f'_y$ xususiy hosilalar musbat

======

$z=f(x,y)$ funksiya $M_0(x_0,y_0)$ nuqta va uning biror atrofida aniqlangan;

======

$M_0(x_0,y_0)$ nuqta va uning biror atrofida $f'_x$ , $f'_y$ xususiy hosilalar mavjud

======

) $M_0(x_0,y_0)$ nuqta va uning biror atrofida $f'_x$ , $f'_y$ xususiy hosilalar uzluksiz

$\frac{1}{a}+\frac{1}{a^2}+....+\frac{1}{a^n}+....$ sonli qator qaysi shartda yaqinlashuvchi bo‘ladi ?

======

# $|a|<1$

======

$|a|\neq 0$

======

$|a|=1$

======

$|a|\neq 1$

$1+\frac{1}{3}+\frac{1}{3^2}+...+\frac{1}{3^{n-1}}+.....$ sonli qator yig‘indisini toping .

======

# 1.5

======

2

======

1.33

======

1

$\frac{1}{1\cdot 3}+\frac{1}{2\cdot 4}+\frac{1}{3\cdot 5}+\cdots+\frac{1}{n(n+2)}+\cdots$ sonli qator yig‘indisini toping.

======

#0.75 .

======

1

======

e

======

Π/2

$\sum_{k=1}^{\infty} u_k$ sonli qator yaqinlashuvchi bo‘lishining zaruriy sharti nimadan iborat ?

======

# $\lim_{n\to\infty} u_n = 0$

======

$\lim_{n\to\infty} u_n < 0$

======

$\lim_{n\to\infty} u_n > 0$

======

$\lim_{n\to\infty} u_n \neq 0$

$\sum_{k=1}^{\infty} u_k$

Qaysi shartda  sonli qator yaqinlashuvchi bo‘ladi ?

======

$\lim_{n\to\infty} u_n$

# mavjud emas

======

$\lim_{n\to\infty} u_n < 0$

======

$\lim_{n\to\infty} u_n > 0$

======

$\lim_{n\to\infty} u_n \neq 0$

$z_1=x_1+iy_1$ va $z_2=x_2+iy_2$ kompleks sonlarni qo‘shish amalining ta’rifi qayerda to‘g‘ri ifodalangan?

======

# $z_1+z_2=(x_1+x_2)+i(y_1+y_2)$

======

$z_1+z_2=(x_1+y_2)+i(x_2+y_1)$

======

$z_1+z_2=(y_1+y_2)+i(x_1+x_2)$

======

$z_1+z_2=(x_2+y_1)+i(x_1+y_2)$

$z_1=5+3i$ va $z_2=-1+2i$ kompleks sonlarning $z_1+z_2$ yig‘indisini toping.

======

#4+5*i*

======

6+5*i*

======

5+4*i*

======

8+5*i*

Kompleks sonlarni qo‘shish amali uchun quyidagi tengliklardan qaysi biri o‘rinli bo‘lmaydi ?

======

# $z+\overline{z}=0$

======

$z_1+z_2= z_2+z_1$

======

$z_1+(z_2+z_3)=(z_1+z_2)+z_3$

======

$z+z=2z$

Trigonometrik shaklda berilgan $z_1=r_1(\cos j_1+i\sin j_1)$ , $z_2=r_2(\cos j_2+i\sin j_2)\neq 0$ kompleks sonlarni $z_1/z_2$ bo‘linmasining moduli $r$ nimaga teng?

======

# $r=r_1/r_2$

======

$r=r_1 \cdot r_2$

======

$r=r_1-r_2$

======

$r=r_1+r_2$

1. $z_1=3(\cos 45^0+i\sin 45^0)$ , $z_2=4(\cos 30^0+i\sin 30^0)$ kompleks sonlarning $z=z_1/z_2$ bo‘linmasini toping.

======

$z=12(\cos 75^0+i\sin 75^0)$

======

$z=4(\cos 15^0+i\sin 15^0)/3$

======

#$z=3(\cos 15^0+i\sin 15^0)/4$

======

$z=12(\cos 15^0+i\sin 15^0)$

$z_0=2(\cos 15^0+i\sin 15^0)$ kompleks son bo‘yicha $z=(z_0)^5$ kompleks sonni toping.

======

# $z=32(\cos 75^0+i\sin 75^0)$

======

$z=32(\cos 15^0+i\sin 15^0)$

======

$z=32(\cos 20^0+i\sin 20^0)$

======

$z=10(\cos 75^0+i\sin 75^0)$

$z=\dfrac{x^2-y^2}{x^2+y^2}$ funksiyaning O(0,0) nuqtadagi limitini toping.

======

# Mavjud emas

======

1

======

2

======

1/2

$f(x,y)=\sqrt{9-x^2-y^2}$ funksiyaning qiymatlar sohasini toping.

======

#[0,3]

======

(–3,3)

======

(0,3)

======

[-3,3]

1. Umumiy hadi $u_n=[(2n+1)/n]^n$ bo‘lgan sonli qator Koshi alomati yordamida

$$k=\lim_{n\to\infty}\sqrt[n]{u_n}$$

tekshirilganda limit qiymati va qator yaqinlashuvi haqidagi tasdiq qaysi javobda to‘g‘ri ko‘rsatilgan ?

======

#$k$=2 va qator uzoqlashuvchi

======

$k$=0 va qator yaqinlashuvchi

======

) $k$=1 va qator uzoqlashuvchi

======

$k$ =0.5 va qator yaqinlashuvchi

$z_1$=5+3$i$ va $z_2$=−1+2$i$ kompleks sonlarning $z_1 \cdot z_2$ ko‘paytmasini toping.

======

# −11+7$i$

======

15−2$i$

======

−5+6$i$

======

10−3$i$

$f(x,y)=\sqrt{9-x^2-y^2}$ funksiyaning D{$f$} aniqlanish sohasini toping.

======

# Radiusi R=3 va markazi O(0,0) nuqtada joylashgan doira;

======

Tomoni $a$=3 va markazi O(0,0) nuqtada joylashgan kvadratning tashqarisidan iborat soha;

======

Tomoni $a$=3 va markazi O(0,0) nuqtada joylashgan kvadrat;

======

Radiusi R=3 va markazi O(0,0) nuqtada joylashgan aylananing tashqarisidan iborat soha;

1. $z=f(x,y)$ funksiyaning $x$ argumenti bo‘yicha xususiy hosilasi qanday aniqlanadi?

======

$$f_x' = \lim_{\Delta x \to 0} \frac{f(x+\Delta x, y) - f(x,y)}{\Delta x}$$

#

======

$$f_x' = \lim_{\Delta x \to 0} \frac{f(x+\Delta x, y+\Delta y) - f(x,y)}{\Delta x}$$

======

$$f_x' = \lim_{\Delta x \to 0} \frac{f(x, y+\Delta x) - f(x,y)}{\Delta x}$$

======

$$f_x' = \lim_{\Delta x \to 0} \frac{f(x+\Delta x, y) + f(x,y)}{\Delta x}$$

$z_1=x_1+y_1i$ va $z_2=x_2+y_2i$ kompleks sonlar qaysi shartda teng deyiladi?

======

# $x_1=x_2$ , $y_1=y_2$

======

$x_1 = x_2$

======

$x_1 = x_2$ , $y_1 \; ^1y_2$

======

$x_1 \; ^1x_2$ , $y_1=y_2$

Quyidagi tengliklarning qaysi birida $z_1=x_1+y_1i$ va $z_2=x_2+y_2i$ kompleks sonlar teng bo‘lmasligi mumkin?

======

#barcha hollarda $z_1=z_2$ bo’ladi.

======

$x_1 - x_2 = 0, y_1 - y_2 = 0$

======

$(x_1 - x2)^2 - (y_1 - y2)^2 = 0$

======

$(x_1 - x2)^2 + (y_1 - y2)^2 = 0$

Qayerda $z$ kompleks sonning trigonometrik shakli to‘g‘ri ko‘rsatilgan?

======

# $z=r(\cos j+i\sin j)$

======

$z=r(\cos j-i\sin j)$

======

$z=r(\sin j+i\cos j)$

======

$z=r(\sin j-i\cos j)$

Agar $z_1+z_2=-3+i$ va $z_1-z_2=7-7i$ bo‘lsa, $z_1$ nimaga teng?

======

#$2-3i$

======

$5+2i$

======

$-4+3i$

======

$2+3i$

$z_1=5+3i$ va $z_2=-1+2i$ kompleks sonlarning $z_1-z_2$ ayirmasini toping.

======

#6+$i$.

======

4+5$i$

======

4−5$i$

======

3+6$i$

Muavr formulasining davomini ko‘rsating: $(\cos\varphi+i\sin\varphi)^n$= ..... .

======

# $\cos n\varphi+i\sin n\varphi$

======

$\cos^n\varphi+i\sin^n\varphi$

======

$\cos n\varphi-i\sin n\varphi$

======

$\cos^n\varphi-i\sin^n\varphi$

Ushbu ifodalardan qaysi biri sonli qator bo‘ladi ?

======

#$u_1+u_2+u_3+\cdots+u_n+\cdots$

======

$u_1\cdot u_2\cdot u_3\cdot \cdots\cdot u_n\cdot \cdots$

======

$u_1 : u_2 : u_3 : \cdots : u_n : \cdots$

======

keltitilgan barcha ifodalar sonli qator bo‘ladi

Musbat hadli $\lim_{n\to\infty} u_n$ sonli qatorni Koshi alomati orqali tekshirish uchun qaysi limit hisoblanadi ?

======

# $\lim_{n\to\infty} \sqrt[n]{u_n}$

======

$\lim_{n\to\infty} \sqrt{u_n}$

======

$\lim_{n\to\infty} \sqrt[n]{u_n u_{n+1}}$

======

$\lim_{n\to\infty} \sqrt[n]{\frac{u_{n+1}}{u_n}}$

1. Ikki o‘zgaruvchili $z = f(x,y)$ funksiya qanday geometrik obyektni ifodalaydi?

======

#fazodagi sirtni

======

tekislikdagi to‘g‘ri chiziqni

======

tekislikdagi egri chiziqni

======

fazodagi tekislikni

1. $z=x^2+y^2+2xy$ funksiyaning $y$ bo‘yicha $D_y z$ xususiy orttirmasini toping.

======

#$D_y z=2(x+y)Dy+Dy^2$

======

$D_y z=2x+2y+2\ (Dx+Dy)$

======

$D_y z=2(Dx+Dy)$

======

$D_y z=2(xDx+\ yDy\ +Dx\times Dy)$

α parametrning qanday qiymatida

$$f(x,y)=\begin{cases}\dfrac{x^2-y^2}{x-y}, & x\neq 1 \text{ va } y\neq 1;\\ \alpha, & x=1 \text{ va } y=1\end{cases}$$

funksiya $M_0(1, 1)$ nuqtada uzluksiz bo‘ladi?

======

# 2

======

1

======

0

======

-1

Ta’rifni to‘ldiring: y =f(x) funksiya aniqlanish sohasi D{f} deb ……aytiladi

======

#x argument qabul qiladigan qiymatlar to’plamiga aytiladi

======

f(x) funksiya qabul qiladigan qiymatlar to’plamiga aytiladi

======

f(x) funksiyaning musbat qiymatlar to’plamiga aytiladi

======

f(x) funksiyaning manfiy qiymatlar to’plamiga aytiladi

Ushbu ifodalardan qaysi biri sonli qator bo‘ladi ?

======

#$u_1+ u_2+ u_3+ \cdots + u_n+ \cdots$

======

$u_1 \cdot u_2 \cdot u_3 \cdot \ \cdots \ \cdot u_n \cdot \ \cdots$

======

$u_1 : u_2 : u_3 : \cdots : u_n : \cdots$

======

keltitilgan barcha ifodalar sonli qator bo‘ladi

$\sum_{n=1}^{\infty} \frac{1}{n(n+1)}$ sonli qatorning $S$ yig‘indisini toping .

======

#S =1

======

S =2

======

S =-2

======

S =-1

$n$-xususiy yig‘indisi $S_n$ bo‘lgan sonli qator qaysi shartda yaqinlashuvchi deyiladi ?

======

# $\lim_{n\to\infty} S_n = C, |C| < \infty$

======

$\lim_{n\to\infty} S_n = -\infty$

======

$\lim_{n\to\infty} S_n = \infty$

======

$\lim_{n\to\infty} S_n = \pm\infty$

“Ikkita o‘yin soqqasi tashlanganda ochkolar ko‘paytmasi .....” tasdiq qanday davom ettirilganda muqarrar hodisaga ega bo‘lamiz?

======

# 36 dan katta bo’lmadi.

======

36 dan katta bo’ldi.

======

36 ga teng bo’ldi.

======

36 dan kichik bo’ldi.

Qaysi shartda II tartibli chiziqli $y'' + a_1 y' + a_2 y = f(x)$ differentsaial tenglama bir jinsli deyiladi ?

======

# f(x)=0

======

f(x)>0

======

f(x)≠0

======

f(x)

I tartibli chiziqli differensial tenglama Bernulli usulida qanday almashtirma yordamida yechiladi ?

======

# y=uv

======

y=u–v

======

y=u/v

======

y=u+v

Ehtimollar nazariyasida qanday hodisalar sinfi qaralmaydi?

======

# Noma’lum hodisalar.

======

Tasodifiy hodisalar.

======

Muqarrar hodisalar.

======

Mumkin bo’lmagan hodisalar.

Muqarrar hodisalar odatda qanday belgilanadi?

======

# Ω .

======

Ø .

======

M.

======

Q.

Quyidagilardan qaysi biri muqarrar hodisa bo‘ladi?

======

# O’yin soqqasi tashlanganda 7 dan kichik ochko chiqdi.

======

Tashlangan tanga gerb tomoni bilan tushdi .

======

Tasodifiy ravishda tanlangan natural son juft bo’ldi.

======

Sotib olingan lotereyaga yutuq chiqmadi.

Idishda 12 ta oq va qora sharlar bor. Idishdan tavakkaliga bitta oq shar olish ehtimoli 1/3 ga teng bo‘lsa, idishda nechta qora shar bo‘lgan?

======

# 8

======

6

======

4

======

9

Ushbu ikki o‘zgaruvchili funksiyaning qiymatlar sohasini toping: $f(x,y)=\sqrt{16+x^2+y^2}$.

======

[0,4]

======

(0,4)

======

#[4,+∞)

======

(–∞,4]

f(z)=u(x,y)+iv(x,y) funktsiyaning differensiallanuvchi bo‘lishi uchun qaysi shartlar zarur va yetarli bo‘ladi? I. $\frac{\partial u}{\partial x}=\frac{\partial v}{\partial x}$ . II. $\frac{\partial u}{\partial x}=\frac{\partial v}{\partial y}$ . III. $\frac{\partial u}{\partial x}=-\frac{\partial v}{\partial x}$ . IV. $\frac{\partial u}{\partial y}=-\frac{\partial v}{\partial x}$.

======

# I va IV

======

I va II

======

I va III

======

IIva III

Ehtimollar nazariyasida hodisa qanday ta’riflanadi?

======

# Hodisa tushunchasi ta’rifsiz qabul etiladi.

======

Har qanday tajribaning ixtiyoriy natijalari hodisa deyiladi.

======

Har qanday kuzatuvning ixtiyoriy natijalari hodisa deyiladi.

======

Har qanday tasdiqlar hodisa deyiladi.

Umumlashgan garmonik qatorning umumiy $u_n$ hadini ko‘rsating

======

$$u_n = \frac{1}{n^p}$$

#

======

$$u_n = \frac{1}{p+n}$$

======

$$u_n = \frac{p^n}{n}$$

======

$$u_n = \frac{1}{p^n}$$

Ehtimolning klassik ta’rifida barcha natijalar soni n=20, A hodisaga qulaylik yaratuvchi natijalar soni m(A)=8 bo‘lsa, P(A) ehtimol qiymati nimaga teng bo‘ladi?

======

# 0.4 .

======

0.6.

======

0.8 .

======

0.2 .

A={tanlangan natural son juft} hodisaga qarama-qarshi hodisani aniqlang.

======

# ={ tanlangan natural son toq}.

======

={ tanlangan natural son tub}.

======

={ tanlangan natural son 2 ga karrali}.

======

={ tanlangan natural son 3 ga karrali}.

n=6 ta elementdan hosil etilgan o‘rin almashtirishlar soni P6 nimaga teng?

======

# 720 .

======

220.

======

160.

======

640.

y=xlnx funksiya o‘sish sohasi qayerda to‘g‘ri ko‘rsatilgan?

======

# (1/e; ∞)

======

(0, e)

======

(-∞, 1/e)

======

(0,∞)

n=5 ta elementdan m=3 tadan hosil etilgan kombinatsiyalar soni nimaga teng?

======

# 10

======

12

======

15

======

18

Differensial tenglama ta’rifini ko‘rsating .

======

# noma’lum funksiya va uning hosilalarining $x_0$ nuqtadagi qiymatlari qatnashgan tenglama .

======

noma’lum funksiyaning hosilalari qatnashgan tenglama .

======

noma’lum funksiyaning turli qiymatlari qatnashgan tenglama

======

noma’lum funksiya qatnashgan tenglama .

Ta’rifni to‘ldiring: A va B hodisalarning ko‘paytmasi deb . . . ro‘y berishini ifodalovchi va A·B kabi belgilanadigan yangi bir hodisaga aytiladi.

======

# ularning ikkalasini ham

======

ulardan birortasini.

======

ulardan faqat bittasini.

======

ulardan kamida bittasini.

Ehtimolning klassik ta’rifida barcha natijalar soni n=20, A hodisaga qulaylik yaratuvchi natijalar soni m(A)=4 bo‘lsa, P(A) ehtimol qiymati nimaga teng bo‘ladi?

======

# 0.2 .

======

0.6.

======

0.8 .

======

0.12 .

M(x,y)dx+N(x,y)dy=0 to‘liq differensialli tenglama bo‘lsa, uning umumiy integrali qaysi formula bilan ifodalanadi?

======

# $\frac{\partial M}{\partial y}=\frac{\partial N}{\partial x}$ .

======

$\frac{\partial M}{\partial x}=\frac{\partial N}{\partial y}$ .

======

$\frac{\partial M}{\partial x}=-\frac{\partial^2 N}{\partial y^2}$ .

======

$\frac{\partial^2 M}{\partial x^2}=\frac{\partial^2 N}{\partial y^2}$ .

z=f(x,y) funksiyaning to‘liq differensiali df=(2x+5y)dx+(3xy−4y)dy bo‘lsa, $f'_y(-3,2)$ qiymatini toping

======

−11

======

# −26

======

4

======

−6

$\sum_{n=1}^{\infty} u_n$

Musbat hadli  sonli qatorni Dalamber alomati orqali tekshirish uchun qaysi limit hisoblanadi ?

======

# $\lim_{n\to\infty} \frac{u_{n+1}}{u_n}$

======

$\lim_{n\to\infty} \sqrt[n]{u_n}$

======

$\lim_{n\to\infty} (u_{n+1} - u_n)$

======

$\lim_{n\to\infty} (u_{n+1} + u_n)$

$z=x^2+y^3+xy$ funksiyaning $dz$ to‘liq differensialini toping.

======

# $dz = (2x + y)dx + (3y^2 + x)dy$

======

$$dz = 2xdx + 3y^2 dy$$

======

$$dz = (3y^2 + x)dx + (2x + y)dy$$

======

$$dz = (x^2 + x)dx + (y^3 + y)dy$$

Trigonometrik shaklda berilgan $z_1=r_1(\cos j_1+i\sin j_1)$ , $z_2=r_2(\cos j_2+i\sin j_2)\neq 0$ kompleks sonlarni $z_1/z_2$ bo‘linmasining moduli $r$ nimaga teng?

======

# $r=r_1/r_2$

======

$r=r_1\cdot r_2$

======

$r=r_1-r_2$

======

$r=r_1+r_2$

$\frac{1}{a}+\frac{1}{a^2}+....+\frac{1}{a^n}+....$ sonli qator qaysi shartda yaqinlashuvchi bo‘ladi ?

======

# $|a|<1$

======

$|a|\neq 0$

======

$|a| = 1$

======

$|a| \neq 1$

Quyidagilardan qaysi biri muqarrar hodisa bo‘ladi?

======

# Tanlangan mahsulot yoki sifatli yoki sifatsiz.

======

Tasodifiy ravishda tanlangan natural son 5 ga karrali.

======

Matndan tasodifiy ravishda olingan harf unli.

======

Ikkita o’yin soqqasi tashlanganda ochkolar yig’indisi 2 dan kichik.

Idishda a ta oq va b ta qora shar bor. Idishdan tasodifiy ravishda olingan sharni qora rangli bo‘lish ehtimolini toping.

======

# b/(a+b) .

======

a/(a+b)

======

b/a .

======

a/b .

«O‘zbekiston» so‘zidan tasodifiy ravishda tanlab olingan harfni unli bo‘lish ehtimoli nimaga teng?

======

# 0.4.

======

0.6.

======

0.8.

======

1

n=4 ta elementdan hosil etilgan o‘rin almashtirishlar soni P4 nimaga teng?

======

# 24 .

======

22.

======

16.

======

64.

n=4 ta kartochkada R, G, B, A harflari yozilgan. Shu kartochkalar tasodifiy ravishda bir qatorga yonma-yon qo‘yilganda, BARG so‘zini hosil bo‘lish ehtimolini toping.

======

# 1/24 .

======

1/18.

======

1/64 .

======

1/16 .

n ta elementdan m tadan hosil etilgan o‘rinlashtirishlar soni qaysi formula bilan hisoblanadi?

======

# n!/(n−m)!

======

(n+m)!/n!

======

n!/m! .

======

(n+m)!/m!

$\frac{1}{2}+\frac{2}{3}+\frac{3}{4}+\frac{4}{5}+\cdots$ sonli qatorning $u_n$ umumiy hadini ko‘rsating.

======

#$u_n$ =n/(n+1)

======

$u_{n=(n-1)/(n+1)}$

======

$u_{n=}$n/(n-1)

======

$u_{n=(n+1)/n}$

Musbat hadli $\lim_{n\to\infty} u_n$ sonli qatorni Koshi alomati orqali tekshirish uchun qaysi limit hisoblanadi ?

======

# $\lim_{n\to\infty} \sqrt[n]{u_n}$

======

$$\lim_{n\to\infty}\sqrt{u_n}$$

======

$$\lim_{n\to\infty}\sqrt[n]{u_n u_{n+1}}$$

======

$$\lim_{n\to\infty}\sqrt[n]{\frac{u_{n+1}}{u_n}}$$

Quyidagi qatorlardan qaysi birining yaqinlashuvini Koshi  alomati yordamida aniqlab bo‘ladi ?

======

$$\sum_{n=1}^{\infty}\left(\frac{n}{2n+1}\right)^n$$

#

======

$$\sum_{n=1}^{\infty}\frac{n}{(n+1)^2}$$

======

$$\sum_{n=1}^{\infty}\frac{n}{3^n}$$

======

$$\sum_{n=1}^{\infty}\frac{1}{1+2n}$$

$\sum_{k=1}^{\infty} u_k$ sonli qator yaqinlashuvchi bo‘lishining zaruriy sharti nimadan iborat ?

======

# $\lim_{n\to\infty} u_n = 0$

======

$\lim_{n\to\infty} u_n < 0$

======

$\lim_{n\to\infty} u_n > 0$

======

$\lim_{n\to\infty} u_n \neq 0$

$z = x+iy$ kompleks son uchun Rez qanday aniqlanadi?

======

# Rez=$x$

======

Rez=$y$

======

Rez=$x+y$

======

to’g’ri javob keltirilmagan

$z_1=x_1+iy_1$ va $z_2=x_2+iy_2$ kompleks sonlarni ayirish amalining ta’rifi qayerda to‘g‘ri ifodalangan?

======

#$z_1-z_2=(x_1-x_2)+i(y_1-y_2)$

======

$z_1-z_2=(x_1-y_2)+i(x_2-y_1)$

======

$z_1-z_2=(x_2-y_1)+i(x_1-y_2)$

======

$z_1-z_2=(x_1-y_1)+i(x_2-y_2)$