

Matematik analiz fanidan test savollari

$N = \{1, 2, 3, \dots\}$ va $M = \{\frac{1}{2}, \frac{1}{3}, \dots\}$ to‘plamlar berilgan. N ni M ga o‘zaro bir qiyamli akslantiruvchi akslantirishni ko‘rsating.

$f(x) = x^2 + 6x + 10$ funksiya berilgan bo’lsa, $f(-2)$ ni toping. **2**

$\lim_{n \rightarrow \infty} \frac{2n^2 - n + 1}{3 - 5n - n^2}$ limitni hisoblang: **-2**

$f(x) = x^2 + x$ funksiya berilgan bo’lsa, $f(x + 1)$ ni toping **$x^2 + 3x + 2$**

$\lim_{n \rightarrow \infty} \frac{n^2 - 2n - 3}{3 - n}$ limitni hisoblang: **$-\infty$**

$s(t) = t^2 - 6t + 8$ bo’lsa, $s(0)$ ni hisoblang. **8**

$\lim_{n \rightarrow \infty} \frac{n^3 - 100n^2 + 1}{100n^3 + n - 100}$ ni hisoblang. **1/100**

$f(x) = \cos x$ funksiya berilgan bo’lsa, $f(\frac{\pi}{4}) = ?$ **ildiz ostida 2/2**

$\lim_{n \rightarrow \infty} \frac{1 + \frac{1}{2} + \frac{1}{4} + \dots + \frac{1}{2^n}}{1 + \frac{1}{3} + \frac{1}{9} + \dots + \frac{1}{3^n}}$ ni hisoblang **4/3**

Ushbu $n \in N$, $\{x_n\} = \{n\} = \{1, 2, \dots, n, \dots\}$ qanday ketma-ketlik? **uzoqlashuvchi**

$\lim_{x \rightarrow 5} \frac{\sqrt{6-x} - 1}{3 - \sqrt{4+x}}$ ni hisoblang **3**

Ushbu $n \in N$, $\{x_n\} = \left\{ \frac{1}{n} \right\} = \left\{ 1, \frac{1}{2}, \frac{1}{3}, \dots \right\}$ qanday ketma-ketlik? **yaqinlashuvchi** kamayuvchi

$\lim_{x \rightarrow 0} \frac{\sin x}{x}$ ni hisoblang **1**

$E = \{x_n\} = \left\{ \frac{n}{n+1} \right\} = \left\{ \frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \dots \right\}$ ketma-ketlik berilgan bo’lsa, $\inf E = ?$, $\sup E = ?$
 $\inf E = 1/2, \sup E = 1$

Quyidagi limitni toping. $\lim_{n \rightarrow \infty} \left(\frac{1}{3} + \frac{1}{15} + \dots + \frac{1}{4n^2 - 1} \right)$ 1/2

$N = \{1, 2, \dots, n, \dots\}$ natural sonlar ketma-ketligi berilgan bo'lsa, $\inf E = ?$, $\sup E = ?$
 $\inf E = 1$, $\sup E = \infty$

$f(x + 1) = x^2 - 3x + 2$ funksiya berilgan $f(x)$ ni toping. $f(x) = x^2 - 5x + 6$

$\lim_{n \rightarrow \infty} \frac{4n^2 - 1}{3 - 2n^2}$ limitni xisoblang: -2

$\lim_{n \rightarrow \infty} \frac{7n^2 - 3n}{1 - 7n}$ limitni xisoblang: - ∞

$\lim_{n \rightarrow \infty} \frac{2n^2 + 5n}{1 - 2n}$ limitni xisoblang: - ∞

$\lim_{n \rightarrow \infty} \frac{(-1)^{n+1}}{7n + 5}$ limitni xisoblang: n=toq son bo'lsa, $+\infty$, n= juft son bo'lsa - ∞

$\lim_{x \rightarrow 3} (x^3 + x - 5)$ limitni hisoblang. 25

$\lim_{n \rightarrow \infty} \sqrt[n]{20}$ ni hisoblang 1

$\lim_{n \rightarrow \infty} \sqrt[n]{49}$ ni hisoblang 1

$\lim_{n \rightarrow \infty} \frac{4n^2 - 3}{7 - 2n^2}$ limitni xisoblang: -2

$\lim_{n \rightarrow \infty} \frac{7n^2 - 4n}{2 - 7n}$ limitni xisoblang: - ∞

$\lim_{n \rightarrow \infty} \frac{2n^2 + 5n}{1 - 2n}$ limitni xisoblang: - ∞

$\lim_{x \rightarrow 4} \frac{\sqrt{x} + 1}{\sqrt{x} - 1}$ limitni hisoblang. 3

$\lim_{x \rightarrow a} \frac{\cos x - \cos a}{x - a}$ quyidagi limitni hisoblang. - $\sin(a)$

Quyidagi funksiyalardan qaysi biri $(-\infty; 0)$ oraliqda o'suvchi?

Quyidagi funksiyalardan qaysi biri $(0; +\infty)$ oraliqda kamayuvchi?

$$f(x) = \frac{3x-5}{x^2-1}$$
 funksiya aniqlanish sohasini toping. $(-\infty, -1), (-1; 1), (1; +\infty)$

$$f(x) = \frac{x+2}{x^2-4}$$
 funksiya aniqlanish sohasini toping. $f'(y = 2x+1) \quad ?$

$$\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n$$
 limitni hisoblang: e , taqribiy 2,71828

Juft funksiya uchun quyidagilardan qaysi biri o'rinni ?

Toq funksiyalarga nisbatan quyidagilardan qaysi biri o'rinni?

$$\lim_{x \rightarrow +\infty} \frac{x^2 - 4}{5x^2 + 3x + 7}$$
 limitni hisoblang: $1/5$

$$\lim_{x \rightarrow +\infty} \frac{x^2 - 6x}{3x^2 + 7x + 1}$$
 limitni hisoblang: $1/3$

$$\lim_{x \rightarrow +\infty} \frac{\sqrt{4x^2 + 1}}{5x - 1}$$
 limitni hisoblang: $2/5 = 0,4$

$$\lim_{x \rightarrow +\infty} \frac{\sqrt{4x^2 + 9}}{3x + 1}$$
 limitni hisoblang: $2/3 = 0,6$

$$\lim_{x \rightarrow \frac{1}{2}} \frac{8x^3 - 1}{4x^2 - 1}$$
 limitni hisoblang: $3/2$

$$\lim_{x \rightarrow \frac{1}{2}} \frac{8x^3 - 1}{3x^2 + 5x + 11}$$
 limitni hisoblang: 0

$$\lim_{x \rightarrow -2} \frac{x^2 - 4}{x^2 + 3x + 2}$$
 limitni hisoblang: 4

$$\lim_{x \rightarrow +\infty} (\sqrt{x+a} - \sqrt{x})$$
 limitni hisoblang: 0

$$\lim_{x \rightarrow +\infty} (\sqrt{3x-7a} - \sqrt{3x})$$
 limitni hisoblang: 0

$$\lim_{x \rightarrow 0} \frac{\operatorname{tg} 2x}{x^3 + x}$$
 limitni hisoblang: 2

$$\lim_{x \rightarrow 0} \frac{\sin 3x}{x}$$
 limitni hisoblang:

3

$$\lim_{x \rightarrow 0} \frac{\sin \frac{3x}{2}}{3x}$$
 limitni hisoblang:

1/2

$$\lim_{x \rightarrow 0} \frac{3^x - 1}{x}$$
 limitni hisoblang:

ln(3)

$$\lim_{x \rightarrow 0} \frac{2^x - 1}{2x}$$
 limitni hisoblang:

1/2 x ln(2)

$$\lim_{x \rightarrow \infty} 2x \left(e^{\frac{1}{x}} - 1 \right)$$
 limitni hisoblang:

2

$$\lim_{x \rightarrow -1} \frac{3x^2 + 3x}{x^3 + 1}$$
 limitni hisoblang:

-1

$$\lim_{x \rightarrow 0} \frac{7x}{\sin 7x}$$
 limitni hisoblang:

1

$$\lim_{n \rightarrow \infty} \frac{2n^2 - 1}{3 - n^2}$$
 limitni hisoblang:

-2

 $f(x)$ funksiya $x = x_0$ nuqtada uzlusiz deyiladi, agarda ...

$$\lim_{x \rightarrow 0} \frac{\arcsin 2x}{5x}$$
 limitni hisoblang:

2/5

 $f(x)$ funksiya $x = x_0$ nuqtada uzlusiz deyiladi, agarda ... $x = x_0$ nuqta $f(x)$ funksiya uchun bartaraf qilish mumkin bo'lgan nuqta agarda ...

$$\lim_{x \rightarrow 0} \frac{\sin 10x}{x}$$
 limitni hisoblang.

10

$$f(x) = 5x - 5 \quad f(0) = ?$$

-5

$$\text{Ushbu } y = \frac{3}{x+3} \text{ funksiyaning aniqlanish sohasini toping. } x = 3 - 3y, y \neq 0, x \neq -3$$

$$f(x) = 6x^2 + 5x - 2 \quad f(1) = ?$$

9

$$\lim_{x \rightarrow \infty} \left(1 + \frac{1}{4x}\right)^x \text{ limitni hisoblang}$$

1/4 e

$$\lim_{x \rightarrow -1} \frac{3x^2 + 3x}{x^3 + 1} \text{ limitni hisoblang:}$$

-1

$$f(x) = x^3 - 2x^2 + x - 1 \text{ funksiya berilgan bo'lsa, } f(1) \text{ ni toping.}$$

-1

$$y = x^2 - 2x + 1 \text{ funksiyaning aniqlanish sohasini toping.}$$

(1,0) -∞ +∞

$a \leq x \leq b$ tengsizlikni qanoatlantiradigan barcha haqiqiy sonlar to'plami..... deyiladi.

Hosila ta'rifi?

$$y = x^2 - 2x + 1 \text{ funksiyaning aniqlanish sohasini toping.}$$

(1,0)

$$y = \ln x - x^2 \quad y(e)=?$$

1-e²

$$\lim_{x \rightarrow 2} (x^2 - 2x + 1) \text{ limitni hisoblang.}$$

1

$$f(x) = x^3 - 3x^2 \text{ funksiya uchun } f(1) \text{- qiymatini toping.}$$

-2

$$\lim_{x \rightarrow 0} \frac{x^2 - 1}{x^2 + 1} \text{ limitni hisoblang.}$$

-1

$$f(x) = x^3 - 3x^2 + 1 \text{ funksiya uchun } f(0) \text{- qiymatini toping.}$$

1

Funksiya ta'rifi qaysi javobda to'g'ri ko'rsatilgan?

$$f(x) = 3x + 8 \quad f(1) = ?$$

11

$$\lim_{x \rightarrow 0} \frac{\sin \frac{x}{3}}{x} \text{ limitni hisoblang.}$$

1/3

$$f(x) = 3x^2 - 4x - 4 \quad f(0) = ?$$

-4

$$\lim_{x \rightarrow 3} \frac{x^3 - 27}{x - 3} \text{ limitni hisoblang.}$$

27

$$x^{(n)} = \left(\frac{2 - 3n^2}{1 + 2n^2}, \frac{2n - 1}{2 + 3n} \right) \text{ ketma-ketlik limitini toping.}$$

-3/2 2/3

$\lim_{x \rightarrow 4} \frac{x^3 - 64}{x - 4}$ limitni hisoblang.	48
$\lim_{x \rightarrow 2} (x^2 - 2x + 1)$ limitni hisoblang.	1
$\lim_{x \rightarrow 8} \frac{x^2 - 64}{x - 8}$ limitni hisoblang.	16
$\lim_{x \rightarrow \infty} \left(1 + \frac{2x}{3}\right)^x$ limitni hisoblang.	$+\infty$
$\lim_{x \rightarrow 0} (x^2 - 3x + 9)$ limitni hisoblang.	9
$\lim_{x \rightarrow 0} (1 + 4x)^{\frac{3}{4x}}$ limitni hisoblang.	e^3
$\lim_{x \rightarrow 5} \frac{x^2 - 25}{x + 5}$ limitni hisoblang.	0
$\lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^x$ limitni hisoblang.	e
$\lim_{x \rightarrow 0} (1 + x)^{\frac{1}{x}}$ limitni hisoblang.	e
$\lim_{x \rightarrow 0} \frac{\sqrt{1+x} - 1}{x}$ limit qiymatini toping: .	1/2
$\lim_{x \rightarrow 0} (1 - 3x)^{\frac{1}{3x}}$ limitni hisoblang.	$1/e$
$\lim_{x \rightarrow \infty} \left(\frac{x+1}{x-1}\right)^x$ limit qiymatini toping: .	e^2
Ushbu $n \in N$, $\{x_n\} = \{n\} = \left\{1, \frac{1}{2}, \dots, \frac{1}{n}, \dots\right\}$ qanday ketma-ketlik?	yaqinlashuvchi
$\lim_{x \rightarrow 3} \frac{x^2 - 6x + 9}{x^2 - 9}$ limitni hisoblang.	0
$f(x) = \frac{x^2 - 5x + 9}{7x}$ funksiyaning aniqlanish sohasini toping. $f'(x) = 1/7 - 9/7x^2$	

$$\lim_{n \rightarrow \infty} (1 + 2 + 3 + \dots + n) \frac{1}{n} \text{ limitni hisoblang.}$$

$$\lim_{x \rightarrow 5} (x^2 + x - 5) \text{ limitni hisoblang.}$$

25

$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{\cos x}{\pi - 2x} \text{ limitning qiymatini toping.}$$

1/2

$$\lim_{x \rightarrow -1} (x^3 + x - 5) \text{ limitni hisoblang.}$$

-7

$$\lim_{x \rightarrow 2} \frac{x^2 + 6x + 8}{x^2 + x - 2} \text{ limitning qiymatini toping.}$$

6

$$y = -3x + 8 \quad y(0) = ?$$

8

$$\lim_{x \rightarrow 2} \frac{4x^2 - 5x + 2}{2x^2 + x - 6} \text{ ni toping.}$$

2

$$\lim_{a \rightarrow 0} (1 + a)^{\frac{1}{a}} \text{ limitni hisoblang.}$$

e, taqrifiy 2,71828

$$\lim_{x \rightarrow 2} \frac{1 - \sqrt{3-x}}{\sqrt{7+x} - 3} \text{ ni toping.}$$

3

$$f(x) = 3x^2 - 2x + 2 \text{ funksiya berilgan bo'lsa, } f(-1) \text{ ni toping.}$$

7

$$\lim_{x \rightarrow 0} \frac{2x}{1 - \sqrt{2x+1}} \text{ ni toping.}$$

-2

$$f(x) = x^3 - 2x^2 + x - 1 \text{ funksiya berilgan bo'lsa, } f(1) \text{ ni toping.}$$

-1

$$y = \frac{1}{x^3 - x} \text{ funksiyaning aniqlanish sohasini toping.}$$

(-\infty; -1) (-1; 0) (0; 1) (-1; +\infty)

$$f(x) = \cos x \text{ funksiya berilgan bo'lsa, } f\left(\frac{\pi}{4}\right) = ?$$

ildiz ostida 2/2

$$y = 1 + \lg(x+2) \text{ funksiyaga teskari funksiyani toping.}$$

$$y = 10^{x-1} - 2 \text{ yoki } y = -2 + 10^{x-1}$$

$$f(x) = x^2 - x + 1 \text{ funksiya berilgan bo'lsa, } f(-2) \text{ ni toping.}$$

7

$$\text{Agar } f(x-1) = 2x^2 - 3x + 1 \text{ bo'lsa, } f(x+1) \text{ ni toping.}$$

$$2x^2 + 5x + 3$$

$$f(x) = \frac{x^2 - 3x + 4}{x}$$

funksiyaning aniqlanish sohasini toping. $f'(x) = 1 - 4/x^2$
 $(+\infty; 0) (0; -\infty)$

$$f(x) = \frac{x^2 - 3x + 4}{x + 1}$$

funksiyaning aniqlanish sohasini toping. $f'(x) = x^2 + 2x - 7$
 $(-\infty; -1) (-1; \infty) (x + 1)^2$

$$\lim_{n \rightarrow \infty} \frac{(-1)^n n}{6n^3 - 3}$$

limitni xisoblang: agar n juft son bo'lsa +0; toq son bo'lsa -0

$$\lim_{z \rightarrow \infty} \left(1 + \frac{1}{z}\right)^{-z}$$

limitni hisoblang. $1/e$

$$\lim_{x \rightarrow \infty} \left(\frac{x}{1+x}\right)^x$$

limitni hisoblang. e $1/e$

$$\lim_{n \rightarrow \infty} \frac{4n^2 - 3}{7 - 2n^2}$$

limitni xisoblang: -2

$$\lim_{n \rightarrow \infty} \frac{7n^2 - 4n}{2 - 7n}$$

limitni xisoblang: $-\infty$

$$\lim_{n \rightarrow \infty} \frac{2n^2 + 5n}{1 - 2n}$$

limitni xisoblang: $-\infty$

$$f(z) = z^2 + 3z - 8$$

funksiya berilgan bo'lsa, $f(-1) = ?$ -10

$$\lim_{n \rightarrow \infty} \frac{(-1)^n n}{6n^3 - 3}$$

limitni xisoblang: 0

$$\lim_{x \rightarrow 0} (1 + 2x)^{\frac{5}{x}}$$

limitni hisoblang. e^{10}

$$\lim_{x \rightarrow 0} (1 + 6x)^{\frac{5}{6x}}$$

limitni hisoblang. e^5

Quyidagi funksiyalardan qaysi biri $(-\infty; 0)$ oraliqda o'suvchi?

Quyidagi funksiyalardan qaysi biri $(0; +\infty)$ oraliqda kamayuvchi?

$$f(x) = \frac{3x - 5}{x^2 - 1}$$

funksiya aniqlanish sohasini toping. $f'(x) = -3x^2 + 10x - 3$
 $(-\infty; -1) (-1; 1) (1; +\infty) (x^2 - 1)^2$

$f(x) = \frac{x+2}{x^2 - 4}$ funksiya aniqlanish sohasini toping.	$f^1(x) = 2^x + 1$ $x \in (-\infty; -2) \cup (2; +\infty)$
$y = \sqrt{\frac{2x-1}{1-2x}}$ funksiyaning aniqlanish sohasini toping	aniq emas
$\lim_{x \rightarrow \infty} \frac{3x^2 - 4x - 2}{4x^2 + 3x + 5}$ limitni hisoblang:	$3/4 = 0,75$
$\lim_{x \rightarrow +\infty} \frac{x^2 - 5x}{5x^2 + 9x + 7}$ limitni hisoblang:	1/5
$\lim_{x \rightarrow +\infty} \frac{x^2 - 6x}{3x^2 + 7x + 1}$ limitni hisoblang:	1/3
$\lim_{x \rightarrow +\infty} \frac{\sqrt{4x^2 + 1}}{5x - 1}$ limitni hisoblang:	2/5
$\lim_{x \rightarrow +\infty} \frac{\sqrt{4x^2 + 7}}{3x + 13}$ limitni hisoblang:	2/3
$\lim_{x \rightarrow \frac{1}{2}} \frac{8x^3 - 1}{4x^2 + 1}$ limitni hisoblang:	0
$\lim_{x \rightarrow \frac{1}{2}} \frac{8x^3 + 12}{4x^2 + 4x + 11}$ limitni hisoblang:	13/14
$f(x) = 9x + 5$ funksiya berilgan bo'lsa, $f(-1) = ?$	3/4 yoki 0.75
$\lim_{n \rightarrow \infty} \sqrt[n]{n} = ?$ Hisoblang	4
$\lim_{x \rightarrow 0} \frac{\operatorname{tg} 2x}{x}$ limitni hisoblang:	1
$\lim_{x \rightarrow 0} \frac{\operatorname{tg} 3x}{x}$ limitni hisoblang:	2
	3

$$\lim_{x \rightarrow 0} \frac{\tg \frac{3x}{2}}{3x} \text{ limitni hisoblang:} \quad 1/2$$

$$\lim_{x \rightarrow 0} \frac{3^x - 1}{x^2 + x} \text{ limitni hisoblang:} \quad \ln(3)$$

$$\lim_{x \rightarrow 0} \frac{2^x - 1}{2x + 2x^2} \text{ limitni hisoblang:} \quad \ln(2)/2$$

$$\lim_{x \rightarrow \infty} 2x \left(e^{\frac{1}{x}} - 1 \right) \text{ limitni hisoblang:} \quad 2$$

$$\lim_{x \rightarrow -1} \frac{3x^2 + 3x}{x^3 + 1} \text{ limitni hisoblang:} \quad -1$$

$$\lim_{x \rightarrow 0} \frac{7x}{\sin 7x} \text{ limitni hisoblang:} \quad 1$$

$$\lim_{x \rightarrow 0} \frac{5 \arcsin x}{4x} \text{ limitni hisoblang:} \quad 5/4$$