

TÜRKMEN POLITEHNIKI INSTITUTY

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**ÝOKARY MATEMATIKADAN
TALYPLARYŇ ÖZBAŞDAK IŞLERI
ÜÇIN ÝUMUŞLAR**

Okuw gollanmasy

Aşgabat 2010

Nurullaýew N. Ýokary matematikadan talyplaryň özbaşdak işleri üçin ýumuşlar. Ýokary okuw mekdepleri üçin okuw gollanmasy. – A.: 2010. – 61 sah.

Okuw gollanmasy «Ýokary matematika» dersiniň dekart we polýar koordinatalar ulgamy, kesgitleýjiler, çyzykly deňlemeler ulgamy, wektor algebrasy, tekizlikde göni çyzyk, matematiki derňewe giriş, funksiýanyň predeli we üznüksizligi, funksiýanyň önümi, funksiýanyň doly derňewi, kesgitsiz integral, kesgitli integral we onuň ulanylyşy bölümleri boýunça talyplaryň özbaşdak işleri üçin taýýarlanan ýumuşlaryň 10 sany toplumyndan ybaratdyr.

Okuw gollanmasy ýokary okuw mekdepleriniň inžener-tehniki hünärleriniň talyplary üçin niýetlendi.

GIRIŞ

TÜRKMENISTANYŇ PREZIDENTI GURBANGULY BERDIMUHAMEDOW:

Biz häzir Türkmenistanda milli bilim ulgamynda diýýpli özgertmeler geçirmäge girişdik. Şol özgertmeleriň baş maksady - türkmen ýaşlaryna dünýäniň iň ösen talaplarynalaýyk gelyän bilim ulgamyny elýeterli etmekden ybaratdyr.

Ýokary matematikadan özbaşdak işlerden ybarat bu okuw gollanmasy Türkmen politehniki institutynyň 1-nji ýyllyk talyplarynyň okuw maksatnamasyna laýyklykda ýokary matematika okuw dersinde öwrenilýän bölümler boýunça taýýarlanyldy. Olar gönüburçly dekart we polýar koordinatlar ulgamy, kesgitleýjiler, çyzykly deňlemeler ulgamy, wektor algebrasy, tekizlikde göni çyzyk, matematiki derňewe giriş, funksiýanyň predeli we üznüksizligi, funksiýanyň önümi, funksiýanyň doly derňewi, kesgitsiz integral, kesgitli integral we onuň ulanylyşy bölümleridir. Şu bölümlere degişli 10 sany özbaşdak işleriň toplумы düzüldi, olaryň 8-sinde çözüliş usullary we çylşyrymlylyk derejesi birmeňzeş bolan 30 sany dürli wariant, 2-sinde bolsa, ýumuşlaryň sany köpeldilip, diňe bir wariant berildi.

Talyplaryň aýratyn ýumuşlary özbaşdak ýerine ýetirmekleri olaryň öwrenilen materiallary doly özleşdirmegine kömek eder, özbaşdak işlemek we netije gazanmak ukyplaryny ösdürer. Talyplar okuwdan soň, aýratynlykda mysal-meseleler çözende geçilen nazary maglumatlary gaýtalamaga, özleşdirmäge, sapak wagtynda işlenen mysal-meseleleri gaýtadan gözden geçirmäge, öwrenmäge zerurlyk döreýär.

Bularyň ählisi geçilen materiallary talyplaryň öz wagtynda öwrenmegine, özleşdirmegine, berilýän materiallary yzygyderli öwrenmeklerine getirýär.

Okuw ýylynyň dowamynda öwreniljek materiallara degişli özbaşdak işleri mugallym ilkinji sapakda talyplara berýär. Talyplar özbaşdak işleri aýratyn depderde ýerine ýetirýärler. Mugallym özbaşdak işleriň öz wagtynda, yzygiderli ýerine ýetirilmegine gözegçilik edýär. Ýerine ýetirilen işleri amaly sapagy okadýan mugallym kabul edýär. Talyp işiň ýerine ýetirilişini aýdyp berýär ýa-da başga warianta degişli ýumuşy mugallymyň gözegçiliginde ýerine ýetirýär.

Umuman, talyplaryň gollanmadaky özbaşdak işleri öz wagtynda, dogruçyl ýerine ýetirmekleri gazanylsa, olaryň ýokary matematikany öwrenmegine uly kömek boljakdygyny ynamly aýtsa bolar.

Özbaşdak iş №1
Gönüburçly dekart we polýar koordinatalar ulgamy,
kesgitleýjiler

1.1. San okunda berlen nokatlary gurmaly:

$$A(3), B(-3), C(7,5), D(-4,5), E(5), F(-6).$$

1.2. xOy gönüburçly dekart koordinatalarda (tekizlikde) berlen nokatlary gurmaly:

$$A(4; 5), B(-3; 4), C(-4; -6), D(2; -3), E(0; -3), K(0; 5), L(2; 0), M(-5; 0).$$

1.3. $Oxyz$ gönüburçly dekart koordinatalarda (giňişlikde) berlen nokatlary gurmaly:

$$A(4; 5; 2), B(-3; 4; 5), C(-4; -6; -2), D(2; -3; -1), E(0; -3; 4), K(5; 0; -2),$$

$$L(-5; 2; 0), M(-5; 0; 0), N(0; 4; 0), F(0; 0; 3), O(0; 0; 0).$$

1.4. Polýar koordinatalarda berlen nokatlary gurmaly:

$$A(2; 0), B(5; \frac{\pi}{4}), C(3; \frac{\pi}{2}), D(2; \frac{5\pi}{4}), E(3; \frac{3\pi}{4}), K(2; \frac{3\pi}{2}), L(2; \pi).$$

1.5. Ikinji we üçünji tertipli kesgitleýjileri hasaplamaly:

$$1) \begin{vmatrix} 3 & 1 \\ 7 & 5 \end{vmatrix}$$

$$2) \begin{vmatrix} 2 & -5 \\ 6 & 4 \end{vmatrix}$$

$$3) \begin{vmatrix} -6 & -12 \\ 5 & 3 \end{vmatrix}$$

$$4) \begin{vmatrix} -3 & 8 \\ -9 & -4 \end{vmatrix}$$

$$5) \begin{vmatrix} 1 & 2 & 6 \\ 3 & 1 & 0 \\ 5 & 4 & 7 \end{vmatrix}$$

$$6) \begin{vmatrix} 2 & 3 & -1 \\ 0 & 4 & 2 \\ 3 & -2 & 5 \end{vmatrix}$$

$$7) \begin{vmatrix} 3 & 1 & 0 & 4 \\ -1 & 2 & -3 & 1 \\ 5 & 0 & 4 & 2 \\ 2 & 3 & -1 & 5 \end{vmatrix}$$

Özbaşdak iş №2

Çyzykly deňlemeler ulgamy

Üç näbelili üç çyzykly deňlemeler ulgamyny –

1) Kramerin usuly;

2) Matrisa usuly bilen çözmeli.

Wariantlar:

$$\text{№1} \begin{cases} 5x - 4y + 2z = 3, \\ -2x + 3y - z = -1, \\ 3x - y + 5z = -2. \end{cases}$$

$$\text{№2} \begin{cases} 3x + y - 6z = 5, \\ 4x - 3y + 2z = -2, \\ x + 2y - 4z = 5. \end{cases}$$

$$\text{№3} \begin{cases} x + 2y + 3z = -1, \\ -3x + y - 2z = 3, \\ 4x - 5y + z = -6. \end{cases}$$

$$\text{№4} \begin{cases} 2x - 3y + 4z = 7, \\ -4x + 2y + z = 0, \\ 3x + 5y - 2z = 4. \end{cases}$$

$$\text{№5} \begin{cases} -3x + 5y + z = 6, \\ 5x + 2y + 4z = 7, \\ 4x + y + 3z = 5. \end{cases}$$

$$\text{№7} \begin{cases} -x + 5y + 2z = 5, \\ 4x - 3y + z = 6, \\ 3x + 2y - 5z = 3. \end{cases}$$

$$\text{№9} \begin{cases} 2x + 3y + z = 1, \\ -x + 4y + 5z = -6, \\ 3x + 5y + 2z = 1. \end{cases}$$

$$\text{№11} \begin{cases} 4x - 3y + z = -3, \\ -3x + 2y + 4z = -8, \\ 2x + y + 3z = 1. \end{cases}$$

$$\text{№13} \begin{cases} x + 2y + z = 2, \\ 5x - y + 2z = -3, \\ 2x + 3y + 2z = 2. \end{cases}$$

$$\text{№15} \begin{cases} 2x - y + 5z = -2, \\ -3x + 2y - 6z = 6, \\ 4x + 5y + z = 8. \end{cases}$$

$$\text{№17} \begin{cases} 7x + 2y + z = 1, \\ 4x - 3y - z = -3, \\ -x + 5y + 2z = 4. \end{cases}$$

$$\text{№19} \begin{cases} -2x - y + 5z = 1, \\ 3x + 2y - z = 0, \\ 5x + 4y + 3z = 2. \end{cases}$$

$$\text{№6} \begin{cases} 4x + 2y + 5z = 2, \\ 3x + 2y - 4z = 0, \\ -2x - y + 2z = -1. \end{cases}$$

$$\text{№8} \begin{cases} 5x + 3y + 2z = 1, \\ 3x + 4y + 3z = 0, \\ -2x + y + 3z = -9. \end{cases}$$

$$\text{№10} \begin{cases} 3x - 2y + 5z = 8, \\ -2x + y + 3z = -5, \\ 2x + 3y - 4z = 1. \end{cases}$$

$$\text{№12} \begin{cases} 5x + 3y + 3z = 0, \\ 4x + 7y + 2z = 10, \\ -2x + 5y + 4z = 2. \end{cases}$$

$$\text{№14} \begin{cases} -2x + 3y + 2z = -8, \\ 3x + y - 2z = 1, \\ x - 4y + 5z = 9. \end{cases}$$

$$\text{№16} \begin{cases} 2x + 3y - z = -2, \\ -3x + 4y + 6z = -1, \\ 4x + 5y + 2z = 1. \end{cases}$$

$$\text{№18} \begin{cases} x + 6y + 3z = -2, \\ -2x + 5y - 4z = 0, \\ 3x + y + 2z = 8. \end{cases}$$

$$\text{№20} \begin{cases} x + 3y + 5z = 5, \\ -3x - 4y + 2z = -3, \\ 2x + y + 6z = 11. \end{cases}$$

$$\text{№21} \begin{cases} 7x - 2y + 3z = -7, \\ -5x + 2y + 9z = -5, \\ 4x - y - 2z = 0. \end{cases}$$

$$\text{№22} \begin{cases} 6x + 5y + 3z = 1, \\ -2x + y + z = -1, \\ 5x + 2y - z = 7. \end{cases}$$

$$\text{№23} \begin{cases} 4x + 6y - 3z = 10, \\ 3x - 5y + 6z = -9, \\ -5x + 7y - 3z = 1. \end{cases}$$

$$\text{№24} \begin{cases} -x + 2y + 5z = 7, \\ 4x + 5y - 7z = -2, \\ 3x + 4y + 2z = -1. \end{cases}$$

$$\text{№25} \begin{cases} x - 3y + 2z = 2, \\ 2x + 5y + 4z = 4, \\ -3x + y - 7z = -5. \end{cases}$$

$$\text{№26} \begin{cases} 3x + 2y - 5z = 0, \\ -x + 3y + 6z = -11, \\ 5x + 2y - 4z = 4. \end{cases}$$

$$\text{№27} \begin{cases} -2x + 6y + z = -5, \\ 5x - 7y + 4z = 6, \\ 4x + 5y + 8z = 0. \end{cases}$$

$$\text{№28} \begin{cases} 3x + 4y - 2z = 6, \\ -x - 2y + 7z = -4, \\ 5x + 3y + z = -1. \end{cases}$$

$$\text{№29} \begin{cases} 5x + y - 4z = 6, \\ 7x - 3y + 5z = -11, \\ 3x + 2y + 4z = 0. \end{cases}$$

$$\text{№30} \begin{cases} 2x + 4y + 3z = 0, \\ 3x - 7y - z = 11, \\ x + 6y + 5z = -7. \end{cases}$$

Özbaşdak iş № 3

Wektor algebrasy

$ABCD$ piramidanyň depeleriniň koordinatalary berlen:

$A(x_1; y_1; z_1), B(x_2; y_2; z_2), C(x_3; y_3; z_3), D(x_4; y_4; z_4)$.

$ABCD$ piramidany gurmaly we

- 1) AB gapyrganyň uzynlygyny,
- 2) AB we AD gapyrgalaryň arasyndaky burçy,
- 3) ABC granyň meýdanyny,
- 4) $ABCD$ piramidanyň göwrümini tapmaly.

Wariantlar:

№	$A(x_1; y_1; z_1)$	$B(x_2; y_2; z_2)$	$C(x_3; y_3; z_3)$	$D(x_4; y_4; z_4)$
1	$A(1; -1; 0)$	$B(1; 6; 2)$	$C(6; 4; -2)$	$D(-3; 1; 3)$
2	$A(2; -2; 1)$	$B(2; 7; 3)$	$C(5; 4; 0)$	$D(-1; 2; 4)$
3	$A(0; -2; -1)$	$B(0; 6; 1)$	$C(4; 3; 0)$	$D(-2; 2; 5)$
4	$A(4; 0; 1)$	$B(-1; 5; 2)$	$C(5; 5; 1)$	$D(1; 4; 5)$
5	$A(3; 2; -1)$	$B(0; 5; 3)$	$C(7; 5; -1)$	$D(2; 5; 4)$
6	$A(2; -1; 0)$	$B(2; 6; 1)$	$C(5; 4; -2)$	$D(3; 6; 7)$
7	$A(0; -1; -2)$	$B(0; 5; 3)$	$C(4; 3; -1)$	$D(4; 4; 8)$
8	$A(3; 1; 1)$	$B(-1; 4; -1)$	$C(6; 2; 2)$	$D(0; 3; 6)$
9	$A(4; -2; 2)$	$B(3; 7; 1)$	$C(7; 3; -1)$	$D(0; 4; 5)$
10	$A(1; -2; -2)$	$B(1; 5; 1)$	$C(5; 2; 0)$	$D(-1; 3; 4)$
11	$A(6; 4; -2)$	$B(1; -1; 0)$	$C(1; 6; 2)$	$D(-3; 1; 3)$
12	$A(5; 4; 0)$	$B(2; -2; 1)$	$C(2; 7; 3)$	$D(-1; 2; 4)$
13	$A(4; 3; 0)$	$B(0; -2; -1)$	$C(0; 6; 1)$	$D(-2; 2; 5)$
14	$A(5; 5; 1)$	$B(4; 0; 1)$	$C(-1; 5; 2)$	$D(1; 4; 5)$
15	$A(7; 5; -1)$	$B(3; 2; -1)$	$C(0; 5; 3)$	$D(2; 5; 4)$
16	$A(5; 4; -2)$	$B(2; -1; 0)$	$C(2; 6; 1)$	$D(3; 6; 7)$
17	$A(4; 3; -1)$	$B(0; -1; -2)$	$C(0; 5; 3)$	$D(4; 4; 8)$
18	$A(6; 2; 2)$	$B(3; 1; 1)$	$C(-1; 4; -1)$	$D(0; 3; 6)$
19	$A(7; 3; -1)$	$B(4; -2; 2)$	$C(3; 7; 1)$	$D(0; 4; 5)$
20	$A(5; 2; 0)$	$B(1; -2; -2)$	$C(1; 5; 1)$	$D(-1; 3; 4)$
21	$A(1; 6; 2)$	$B(6; 4; -2)$	$C(1; -1; 0)$	$D(-3; 1; 3)$
22	$A(2; 7; 3)$	$B(5; 4; 0)$	$C(2; -2; 1)$	$D(-1; 2; 4)$
23	$A(0; 6; 1)$	$B(4; 3; 0)$	$C(0; -2; -1)$	$D(-2; 2; 5)$
24	$A(-1; 5; 2)$	$B(5; 5; 1)$	$C(4; 0; 1)$	$D(1; 4; 5)$
25	$A(0; 5; 3)$	$B(7; 5; -1)$	$C(3; 2; -1)$	$D(2; 5; 4)$
26	$A(2; 6; 1)$	$B(5; 4; -2)$	$C(2; -1; 0)$	$D(3; 6; 7)$
27	$A(0; 5; 3)$	$B(4; 3; -1)$	$C(0; -1; -2)$	$D(4; 4; 8)$
28	$A(-1; 4; -1)$	$B(6; 2; 2)$	$C(3; 1; 1)$	$D(0; 3; 6)$
29	$A(3; 7; 1)$	$B(7; 3; -1)$	$C(4; -2; 2)$	$D(0; 4; 5)$
30	$A(1; 5; 1)$	$B(5; 2; 0)$	$C(1; -2; -2)$	$D(-1; 3; 4)$

Özbaşdak iş № 4

Tekizlikde göni çyzyk

ABC üçburçlugyň depeleriniň koordinatalary berlen:

$A(x_A; y_A)$, $B(x_B; y_B)$, $C(x_C; y_C)$.

- 1) BC tarapyň uzynlygyny,
- 2) BC tarapyň deňlemesini,
- 3) A depeden BC tarapa geçirilen beýikligiň deňlemesini,
- 4) A depeden BC tarapa geçirilen beýikligiň uzynlygyny,
- 5) ABC üçburçlugyň meýdanyny tapmaly.

ABC üçburçlugy we A depeden BC tarapa geçirilen beýikligi gurmaly.

Wariantlar:

№	$A(x_A; y_A)$	$B(x_B; y_B)$	$C(x_C; y_C)$
1	$A(-3; -2)$	$B(1; 6)$	$C(6; -1)$
2	$A(2; -2)$	$B(2; 7)$	$C(5; 4)$
3	$A(-2; 0)$	$B(0; 6)$	$C(4; 3)$
4	$A(-4; 0)$	$B(-1; 5)$	$C(5; -1)$
5	$A(3; 2)$	$B(0; 5)$	$C(7; 5)$
6	$A(-2; -1)$	$B(2; 6)$	$C(5; 4)$
7	$A(0; -1)$	$B(1; 5)$	$C(4; 3)$
8	$A(3; 1)$	$B(-1; 4)$	$C(6; 5)$
9	$A(4; -2)$	$B(3; 7)$	$C(-1; 2)$
10	$A(-3; -2)$	$B(1; 5)$	$C(5; 2)$
11	$A(1; 6)$	$B(6; -1)$	$C(-3; -2)$
12	$A(2; 7)$	$B(5; 4)$	$C(2; -2)$
13	$A(0; 6)$	$B(4; 3)$	$C(-2; 0)$
14	$A(-1; 5)$	$B(5; -1)$	$C(-4; 0)$
15	$A(0; 5)$	$B(7; 5)$	$C(3; 2)$
16	$A(2; 6)$	$B(5; 4)$	$C(-2; -1)$
17	$A(1; 5)$	$B(4; 3)$	$C(0; -1)$
18	$A(-1; 4)$	$B(6; 5)$	$C(3; 1)$
19	$A(3; 7)$	$B(-1; 2)$	$C(4; -2)$
20	$A(1; 5)$	$B(5; 2)$	$C(-3; -2)$
21	$A(6; -1)$	$B(-3; -2)$	$C(1; 6)$

22	$A(5; 4)$	$B(2; -2)$	$C(2; 7)$
23	$A(4; 3)$	$B(-2; 0)$	$C(0; 6)$
24	$A(5; -1)$	$B(-4; 0)$	$C(-1; 5)$
25	$A(7; 5)$	$B(3; 2)$	$C(0; 5)$
26	$A(5; 4)$	$B(-2; -1)$	$C(2; 6)$
27	$A(4; 3)$	$B(0; -1)$	$C(1; 5)$
28	$A(6; 5)$	$B(3; 1)$	$C(-1; 4)$
29	$A(-1; 2)$	$B(4; -2)$	$C(3; 7)$
30	$A(5; 2)$	$B(2; 3)$	$C(1; 5)$

Özbaşdak iş №5

Matematiki derňewe giriş

5.1. Berlen droblary onluk drob ýa-da tükeniksiz periodik onluk drob görnüşinde ýazmaly:

$$\frac{1}{2}; \quad \frac{1}{3}; \quad \frac{2}{3}; \quad \frac{1}{4}; \quad \frac{2}{4}; \quad \frac{3}{4}; \quad \frac{1}{5}; \quad \frac{2}{5}; \quad \frac{3}{5}; \quad \frac{4}{5}; \quad \frac{5}{5};$$

$$2\frac{3}{5}; \quad -2\frac{3}{5}; \quad -1\frac{5}{6}.$$

5.2. Aňlatmalaryň san bahalaryny 0,001 takyklykda hasaplamaly:

$$\sqrt{2}, \sqrt{3}, \sqrt{4}, \sqrt{5}, \sqrt{6}, \sqrt{7}, \sqrt{8}, \sqrt{9}, \sqrt{10},$$

$$\pi, e, 2^{-2}, 2^{-3}, 2^{-4}, 2^{-5}.$$

5.3. San okunda berlen aralyklary, kesimleri gurmaly:

$$(1; 4), [5; 7], [-3; -1).$$

5.4. Deňlemeleri – 1) $|x| = 2$, 2) $|x-3| = 1$

we deňsizlikleri – 3) $|x| \leq 2$, 4) $|x| > 2$, 5) $|x-3| \leq 1$,

$$6) |x-3| > 1, \quad 7) |2x+5| < 3$$

çözmeli. Alnan çözüwleri san okunda görkezmeli.

5.5. Funksiýalaryň grafiklerini gurmaly:

- | | | |
|---------------------|--------------------|--|
| 1) $y = 3,$ | 2) $y = 2x,$ | 3) $y = 2x + 3,$ |
| 4) $x = 3,$ | 5) $y = x^2 - 1,$ | 6) $y = 3 - x^2,$ |
| 7) $y = x^3,$ | 8) $y = 2^x,$ | 9) $y = 3^x,$ |
| 10) $y = \log_2 x,$ | 11) $y = \log_4 x$ | 12) $y = \sin x,$ |
| 13) $y = 2 \sin x,$ | 14) $y = \sin 2x,$ | 15) $y = \sin \left(x + \frac{\pi}{3} \right).$ |

5.6. Funksiýalaryň kesgitleniş ýaýlasyny tapmaly we grafiklerini gurmaly:

$$1) y = \sqrt{4x-3}, \quad 2) y = \frac{3}{x-2}.$$

Özbaşdak iş №6

Funksiýanyň predeli we üznüksizligi Wariant №1.

6.1. $\{2^{3-n}\}_1^\infty$ san yzygiderliginiň ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} 2^{3-n}$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{2n^2 + 3n - 7}{3n^2 - 4n + 5}, \quad 2) \lim_{x \rightarrow 1} \frac{x^2 - 1}{2x^2 + 3x - 5}, \quad 3) \lim_{x \rightarrow 4} \frac{\sqrt{x} - 2}{x - 4}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} x^2 + 1, & x \leq 0; \\ x + 1, & 0 < x \leq 3; \\ 5, & x > 3. \end{cases} \quad 2) y = 2^{\frac{1}{x-1}} + 2.$$

Wariant №2.

6.1. $\{2^{2-n} + 3\}_1^\infty$ san yzygiderliginiň ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (2^{2-n} + 3)$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{5n^3 - 6n + 2}{4n^2 + 3n - 9}, \quad 2) \lim_{x \rightarrow 5} \frac{x^2 - 10x + 25}{x^2 - 25},$$
$$3) \lim_{x \rightarrow 0} \frac{\sqrt{1+x} - \sqrt{1-x}}{2x}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 2x + 3, & x < -1; \\ x^2 - 1, & -1 \leq x \leq 2; \\ 3, & x > 2. \end{cases} \quad 2) y = 2^{\frac{1}{x-2}} + 1.$$

Wariant №3.

6.1. $\{1 - 2^{3-n}\}_1^\infty$ san yzygiderliginiň ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (1 - 2^{3-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{6n^2 + 3n - 7}{n^4 + 2n^2 + 8}, \quad 2) \lim_{x \rightarrow \frac{1}{2}} \frac{4x^2 - 4x + 1}{10x - 5},$$

$$3) \lim_{x \rightarrow 4} \frac{\sqrt{x-3} - 1}{\sqrt{x+5} - 3}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 3, & x \leq -2; \\ x + 5, & -2 < x \leq 0; \\ 2x^2 - 3, & x > 0. \end{cases} \quad 2) y = 2^{\frac{2}{x-2}} - 3.$$

Wariant №4.

6.1. $\{4 - 2^{3-n}\}_1^\infty$ san yzygiderliginiň ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (4 - 2^{3-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{10n^2 - 4n + 15}{5n^2 + 7n - 2}, \quad 2) \lim_{x \rightarrow -3} \frac{2x + 6}{x^2 - 2x - 15},$$

$$3) \lim_{x \rightarrow 2} \frac{2 - \sqrt{2x}}{\sqrt{6x + 4} - 4}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 2 - x^2, & x \leq 1; \\ 3x - 2, & 1 < x \leq 3; \\ 1, & x > 3. \end{cases} \quad 2) y = 2^{\frac{3}{x+1}} - 3.$$

Wariant №5.

6.1. $\{2 - 2^{5-2n}\}_1^\infty$ san yzygiderliginiň ilkinji 4 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (2 - 2^{5-2n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{15n^3 + 4n - 7}{5n^2 + 3n + 8}, \quad 2) \lim_{x \rightarrow 5} \frac{x^2 - 2x - 15}{2x^2 - 7x - 15},$$

$$3) \lim_{x \rightarrow 4} \frac{\sqrt{2x+1} - 3}{\sqrt{x-2} - \sqrt{2}}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) \ y = \begin{cases} 1, & x \leq -3; \\ 4 - x, & -3 < x \leq -1; \\ x^2 + 4, & x > -1. \end{cases} \quad 2) \ y = 2^{\frac{2}{x-1}} - 2.$$

Wariant №6.

6.1. $\{3 - 2^{2-n}\}_1^\infty$ san yzygiderliginiñ ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (3 - 2^{2-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \ \lim_{n \rightarrow \infty} \frac{4n^2 - 7n + 9}{2n^4 - 10n^2 + 3}, \quad 2) \ \lim_{x \rightarrow 1} \frac{3x^2 - x - 2}{3x^2 - 4x + 1},$$

$$3) \ \lim_{x \rightarrow -1} \frac{\sqrt{x+10} - 3}{2x + 2}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) \ y = \begin{cases} 3x - 1, & x < 0; \\ x^2 - 1, & 0 \leq x \leq 3; \\ 6, & x > 3. \end{cases} \quad 2) \ y = 2^{\frac{3}{x+1}} - 3.$$

Wariant №7.

6.1. $\{7 - 2^{3-n}\}_1^\infty$ san yzygiderliginiñ ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (7 - 2^{3-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$\begin{aligned} 1) \lim_{n \rightarrow \infty} \frac{3n^2 + 7n - 9}{3n^2 - 5n + 12}, \quad & 2) \lim_{x \rightarrow 7} \frac{x^2 - 14x + 49}{x^2 - 49}, \\ 3) \lim_{x \rightarrow 0} \frac{\sqrt{1+x^2} - 1}{x^2}. \end{aligned}$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 3 - x^2, & x \leq 2; \\ 2x - 5, & 2 < x \leq 4; \\ 5, & x > 4. \end{cases} \quad 2) y = 2^{\frac{2}{x+2}} + 1.$$

Wariant №8.

6.1. $\{4 - 2^{3-2n}\}_1^\infty$ san yzygiderliginiň ilkinji 4 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (4 - 2^{3-2n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$\begin{aligned} 1) \lim_{n \rightarrow \infty} \frac{n^3 - n - 2}{9n^2 + 15n + 1}, \quad & 2) \lim_{x \rightarrow 2} \frac{x^2 - 4x + 4}{x^2 - 4}, \\ 3) \lim_{x \rightarrow 0} \frac{\sqrt{x^3 + 1} - 1}{x^3}. \end{aligned}$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) \ y = \begin{cases} -2, & x < -2; \\ x+2, & -2 \leq x < -1; \\ 2x^2-1, & x \geq -1. \end{cases} \quad 2) \ y = 2^{\frac{3}{x-1}} + 3.$$

Wariant №9.

6.1. $\{2^{4-n} + 1\}_1^\infty$ san zygyiderliginiň ilkinji 6 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (2^{4-n} + 1)$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \ \lim_{n \rightarrow \infty} \frac{5n^2 - 3n + 12}{3n^4 + 4n^2 - 7}, \quad 2) \ \lim_{x \rightarrow 5} \frac{x^2 - 25}{x^2 - 5x}, \quad 3) \ \lim_{x \rightarrow 0} \frac{\sqrt{x+4} - 2}{x}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) \ y = \begin{cases} x-1, & x < -1; \\ 2x^2-4, & -1 \leq x \leq 2; \\ 4, & x > 2. \end{cases} \quad 2) \ y = 2^{\frac{2}{x-1}} - 1.$$

Wariant № 9.

6.1. $\{5 - 2^{3-n}\}_1^\infty$ san zygyiderliginiň ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (5 - 2^{3-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{5n^2 + 11n - 7}{n^2 + 12n - 1}, \quad 2) \lim_{x \rightarrow 2} \frac{x^2 - 3x + 2}{2x^2 - 5x + 2}, \quad 3) \lim_{x \rightarrow 0} \frac{\sqrt{1 + x^4} - 1}{x^4}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} -1, & x < -3; \\ 2x + 5, & -3 \leq x < -1; \\ x^2 - 2, & x \geq -1. \end{cases} \quad 2) y = 2^{\frac{3}{x-1}} - 2.$$

Wariant №11.

6.1. $\{2^{2-n} - 3\}_1^\infty$ san yzygiderliginiň ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (2^{2-n} - 3)$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{5n^2 + 4n - 8}{7n^3 - 3n^2 + 9}, \quad 2) \lim_{x \rightarrow 6} \frac{x^2 - 9x + 18}{3x^2 - 17x - 6}, \quad 3) \lim_{x \rightarrow 2} \frac{\sqrt{x^2 + 5} - 3}{x - 2}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 2x+3, & x < -1; \\ x^2, & -1 \leq x \leq 2; \\ 5, & x > 2. \end{cases} \quad 2) y = 2^{\frac{1}{x-1}} - 3.$$

Wariant №12.

6.1. $\{7 - 2^{5-2n}\}_1^\infty$ san yzygiderliginiň ilkinji 4 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (7 - 2^{5-2n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{2n^3 - 7n + 4}{7n^2 + 5n + 11}, \quad 2) \lim_{x \rightarrow 1} \frac{3x^2 - 4x + 1}{x^2 - 3x + 2},$$

$$3) \lim_{x \rightarrow 0} \frac{\sqrt{x+9} - 3}{x}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 3 - x^2, & x \leq 2; \\ 3x - 7, & 2 < x \leq 4; \\ 2, & x > 4. \end{cases} \quad 2) y = 2^{\frac{3}{x-2}} + 2.$$

Wariant №13.

6.1. $\{2 - 2^{3-n}\}_1^\infty$ san yzygiderliginiň ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (2 - 2^{3-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$\begin{aligned} 1) \lim_{n \rightarrow \infty} \frac{7n^2 + 2n + 5}{2n^2 - 3n - 17}, \quad & 2) \lim_{x \rightarrow 4} \frac{2x^2 - 9x + 4}{x^2 + x - 20}, \\ 3) \lim_{x \rightarrow \sqrt{3}} \frac{x - \sqrt{3}}{x^2 - 3}. \end{aligned}$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 5 - x^2, & x \leq 1; \\ 3x - 5, & 1 < x \leq 3; \\ 4, & x > 3. \end{cases} \quad 2) y = 2^{\frac{2}{x-2}} + 1.$$

Wariant №14.

6.1. $\{5 - 2^{3-2n}\}_1^\infty$ san yzygiderliginiň ilkinji 4 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (5 - 2^{3-2n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$\begin{aligned} 1) \lim_{n \rightarrow \infty} \frac{4n^3 - 3n - 9}{7n^2 + 8n + 5}, \quad & 2) \lim_{x \rightarrow 1} \frac{2x^2 - 5x + 3}{x^2 + 4x - 5}, \\ 3) \lim_{x \rightarrow 4} \frac{\sqrt{x} - 2}{\sqrt{x-3} - 1}. \end{aligned}$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} -3, & x < -3; \\ 2x+5, & -3 \leq x < -1; \\ 2x^2+1, & x \geq -1. \end{cases} \quad 2) y = 2^{\frac{2}{x-3}} - 2.$$

Wariant №15.

6.1. $\{7 - 2^{4-n}\}_1^\infty$ san yzygiderliginiñ ilkinji 6 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (7 - 2^{4-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{6n^2 - 5n + 10}{5n^4 + 8n^2 - 13}, \quad 2) \lim_{x \rightarrow 5} \frac{x^2 - 25}{2x^2 - 7x - 15},$$

$$3) \lim_{x \rightarrow 2} \frac{\sqrt{x-1} - 1}{2x - 4}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 3x+8, & x < -1; \\ 2x^2-5, & -1 \leq x \leq 2; \\ 3, & x > 2. \end{cases} \quad 2) y = 2^{\frac{2}{x-3}} + 3.$$

Wariant №16.

6.1. $\{2^{3-n} + 5\}_1^\infty$ san yzygiderliginiñ ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (2^{3-n} + 5)$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{15n^2 + 7n - 1}{3n^2 + 5n - 8}, \quad 2) \lim_{x \rightarrow 2} \frac{x^2 + 6x - 16}{3x^2 - 5x - 2},$$

$$3) \lim_{x \rightarrow 0} \frac{2x^2}{\sqrt{x^2 + 4} - 2}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 5, & x < -3; \\ x + 8, & -3 \leq x < -1; \\ 3x^2 - 2, & x \geq -1. \end{cases} \quad 2) y = 2^{\frac{2}{x-2}} - 1.$$

Wariant №17.

6.1. $\{7 - 2^{2-n}\}_1^\infty$ san zygydirliginiň ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (7 - 2^{2-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{2n^2 + 3n - 12}{6n^3 - 5n^2 + 7}, \quad 2) \lim_{x \rightarrow 4} \frac{x^2 - x - 12}{2x^2 - 7x - 4},$$

$$3) \lim_{x \rightarrow 4} \frac{\sqrt{4x} - x}{x^2 - 16}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} x+6, & x < -2; \\ 3x^2-5, & -2 \leq x \leq 1; \\ -2, & x > 1. \end{cases} \quad 2) y = 2^{\frac{2}{x-3}} + 2.$$

Wariant №18.

6.1. $\{10 - 2^{5-2n}\}_1^\infty$ san yzygiderliginiň ilkinji 4 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly.
 $\lim_{n \rightarrow \infty} (10 - 2^{5-2n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{3n^3 - 2n + 14}{9n^2 + 12n + 20}, \quad 2) \lim_{x \rightarrow -1} \frac{x^2 - 1}{x^2 + 3x + 2},$$

$$3) \lim_{x \rightarrow 5} \frac{x - \sqrt{5x}}{x - 5}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 6 - x^2, & x \leq 2; \\ 2x - 2, & 2 < x \leq 4; \\ 1, & x > 4. \end{cases} \quad 2) y = 2^{\frac{2}{x-2}} - 2.$$

Wariant №19.

6.1. $\{3 - 2^{3-n}\}_1^\infty$ san yzygiderliginiň ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly.
 $\lim_{n \rightarrow \infty} (3 - 2^{3-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{3n^2 + 8n + 7}{2n^2 + 5n - 12},$$

$$2) \lim_{x \rightarrow -3} \frac{2x^2 + 5x - 3}{x^2 - 9},$$

$$3) \lim_{x \rightarrow 0} \frac{x^2 - x}{\sqrt{x+1} - \sqrt{x-1}}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 7 - 2x^2, & x \leq 2; \\ 3x - 7, & 2 < x \leq 4; \\ 3, & x > 4. \end{cases} \quad 2) y = 2^{\frac{2}{x-3}} + 1.$$

Wariant №20.

6.1. $\{7 - 2^{3-2n}\}_1^\infty$ san yzygiderliginiň ilkinji 4 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly.
 $\lim_{n \rightarrow \infty} (7 - 2^{3-2n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{2n^3 - 5n - 21}{10n^2 + 8n + 27}, \quad 2) \lim_{x \rightarrow 2} \frac{x^2 - 2x}{x^2 - 4x + 4},$$

$$3) \lim_{x \rightarrow 0} \frac{5x}{\sqrt{5+x} - \sqrt{5-x}}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 1, & x < -4; \\ 2x + 3, & -4 \leq x < -1; \\ 3x^2 - 2, & x \geq -1. \end{cases} \quad 2) y = 2^{\frac{3}{x-3}} - 1.$$

Wariant №21.

6.1. $\{4 - 2^{4-n}\}_1^\infty$ san zzygiderliginiñ ilkinji 6 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (4 - 2^{4-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$\begin{aligned} 1) \lim_{n \rightarrow \infty} \frac{10n^2 - 2n + 19}{3n^4 + 2n^2 - 13}, \quad 2) \lim_{x \rightarrow 2} \frac{x^2 - 8x + 12}{3x^2 - 4x - 4}, \\ 3) \lim_{x \rightarrow 9} \frac{\sqrt{2x+7} - 5}{x-9}. \end{aligned}$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 3-x, & x < -2; \\ 2x^2 - 7, & -2 \leq x \leq 2; \\ 1, & x > 2. \end{cases} \quad 2) y = 2^{\frac{2}{x-2}} + 2.$$

Wariant №22.

6.1. $\{6 - 2^{3-n}\}_1^\infty$ san zzygiderliginiñ ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (6 - 2^{3-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{9n^2 + 17n - 5}{3n^2 - 7n + 15}, \quad 2) \lim_{x \rightarrow 3} \frac{x^2 + x - 12}{2x^2 - 9x + 9},$$

$$3) \lim_{x \rightarrow -2} \frac{\sqrt{x+6} - 2}{x+2}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 2, & x < -3; \\ x+5, & -3 \leq x < -1; \\ 2x^2+1, & x \geq -1. \end{cases} \quad 2) y = 2^{\frac{2}{x-3}} - 3.$$

Wariant №23.

6.1. $\{5 - 2^{2-n}\}_1^\infty$ san yzygiderliginiň ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (5 - 2^{2-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{8n^2 + 13n - 1}{2n^3 - 9n^2 + 4}, \quad 2) \lim_{x \rightarrow 2} \frac{x^2 - 7x + 10}{x^2 - 8x + 12},$$

$$3) \lim_{x \rightarrow 4} \frac{x-4}{\sqrt{6x+1} - 5}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 3-x, & x < -2; \\ 2x^2-6, & -2 \leq x \leq 1; \\ -4, & x > 1. \end{cases} \quad 2) y = 2^{\frac{2}{x-1}} + 1.$$

Wariant №24.

6.1. $\{4 - 2^{5-2n}\}_1^\infty$ san yzygiderliginiň ilkinji 4 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (4 - 2^{5-2n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$\begin{aligned} 1) \lim_{n \rightarrow \infty} \frac{n^3 - 9n + 1}{12n^2 + 5n + 18}, \quad & 2) \lim_{x \rightarrow 2} \frac{x^2 - 6x + 8}{x^2 - 8x + 12}, \\ 3) \lim_{x \rightarrow 3} \frac{\sqrt{x+1} - 2}{\sqrt{x-2} - 1}. \end{aligned}$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 4 - x^2, & x \leq 1; \\ 3x - 8, & 1 < x \leq 4; \\ 4, & x > 4. \end{cases} \quad 2) y = 2^{\frac{2}{x-1}} - 3.$$

Wariant №25.

6.1. $\{4 + 2^{3-n}\}_1^\infty$ san yzygiderliginiň ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (4 + 2^{3-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{6n^2 - 7n + 10}{3n^2 + 18n + 25}, \quad 2) \lim_{x \rightarrow 10} \frac{x^2 - 100}{x - 10},$$

$$3) \lim_{x \rightarrow 0} \frac{6x}{\sqrt{9+x} - \sqrt{9-x}}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 5 - 2x^2, & x \leq 2; \\ x - 1, & 2 < x \leq 5; \\ 4, & x > 5. \end{cases} \quad 2) y = 2^{\frac{1}{x-2}} + 4.$$

Wariant №26.

6.1. $\{3 - 2^{3-2n}\}_1^\infty$ san yzygiderliginiň ilkinji 4 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly.
 $\lim_{n \rightarrow \infty} (3 - 2^{3-2n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{2n^3 + 3n - 27}{7n^2 + 5n + 17}, \quad 2) \lim_{x \rightarrow 2} \frac{6x^2 - 12x}{x^2 - 7x + 10},$$

$$3) \lim_{x \rightarrow -2} \frac{5x + 10}{\sqrt{3+x} + 1}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 4, & x < -3; \\ 2x + 3, & -3 \leq x < -1; \\ 2x^2 - 1, & x \geq -1. \end{cases} \quad 2) y = 2^{\frac{2}{x-1}} - 4.$$

Wariant №27.

6.1. $\{5 - 2^{4-n}\}_1^\infty$ san yzygiderliginiň ilkinji 6 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (5 - 2^{4-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$\begin{aligned} 1) \lim_{n \rightarrow \infty} \frac{13n^2 + 9n + 23}{2n^3 - 5n - 10}, \quad 2) \lim_{x \rightarrow 1} \frac{2x^2 + 5x - 7}{3x^2 - x - 2}, \\ 3) \lim_{x \rightarrow 16} \frac{x - 4\sqrt{x}}{\sqrt{x} - 4}. \end{aligned}$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} -x, & x < -1; \\ 2x^2 - 3, & -1 \leq x \leq 2; \\ 5, & x > 2. \end{cases} \quad 2) y = 2^{\frac{1}{x-2}} + 4.$$

Wariant №28.

6.1. $\{4 + 2^{2-n}\}_1^\infty$ san yzygiderliginiň ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (4 + 2^{2-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{8n^2 + 3n + 4}{4n^2 + 9n + 11}, \quad 2) \lim_{x \rightarrow 2} \frac{x^2 - 4x + 4}{x - 2},$$

$$3) \lim_{x \rightarrow 4} \frac{\sqrt{x-3} - 1}{x - 4}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} -5, & x < -3; \\ x - 2, & -3 \leq x < -1; \\ x^2 + 2, & x \geq -1. \end{cases} \quad 2) y = 2^{\frac{2}{x-1}} + 3.$$

Wariant №29.

6.1. $\{2 + 2^{2-n}\}_1^\infty$ san yzygiderliginiň ilkinji 5 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly. $\lim_{n \rightarrow \infty} (2 + 2^{2-n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$1) \lim_{n \rightarrow \infty} \frac{12n^2 + 7n + 5}{3n^3 - 20n^2 - 13}, \quad 2) \lim_{x \rightarrow 1} \frac{3x^2 - 4x + 1}{2x^2 + 5x - 7},$$

$$3) \lim_{x \rightarrow 6} \frac{x - 6}{\sqrt{x+3} - 3}.$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 1 - 2x, & x < -2; \\ 2x^2 - 3, & -2 \leq x \leq 1; \\ 3, & x > 1. \end{cases} \quad 2) y = 2^{\frac{3}{x-3}} + 1.$$

Wariant №30.

6.1. $\{6 - 2^{5-2n}\}_1^\infty$ san yzygiderliginiň ilkinji 4 agzasyny hasaplamaly we alnan sanlary san okunda gurmaly.
 $\lim_{n \rightarrow \infty} (6 - 2^{5-2n})$ predeli tapmaly.

6.2. Predelleri hasaplamaly:

$$\begin{aligned} 1) \lim_{n \rightarrow \infty} \frac{2n^3 - 5n - 17}{15n^2 + 9n + 25}, & \quad 2) \lim_{x \rightarrow 1} \frac{5x^2 - 3x - 2}{4x^2 + 3x - 7}, \\ 3) \lim_{x \rightarrow 9} \frac{\sqrt{x-5} - 2}{x-9}. \end{aligned}$$

6.3. Funksiýalaryň üznük nokatlaryny tapmaly we grafiklerini gurmaly:

$$1) y = \begin{cases} 6 - x^2, & x \leq 1; \\ 2x - 3, & 1 < x \leq 4; \\ 5, & x > 4. \end{cases} \quad 2) y = 2^{\frac{3}{x}} + 1.$$

Özbaşdak iş №7

Funksiýanyň önümi

Berlen funksiýalaryň önümlerini tapmaly.

Wariant №1.

№ 7.1 $y = 8x^{12}$

№ 7.2 $y = ax^{7,6}$

№ 7.3 $y = 5/x^3$

№ 7.4 $y = \sqrt[7]{x^5}$

№ 7.5 $y = 3x^2 + 12x - 5$

№ 7.6 $y = 5e^x - 8\ln x$

№ 7.7 $y = e^x \cdot \sin x$

№ 7.8 $y = (4x - 3) / (5x + 1)$

№ 7.9 $y = 4 \cdot \log_2 5x$

№ 7.10 $y = (10x - 3)^9$

№ 7.11 $y = 5^{6x-7}$

№ 7.12 $y = 19 \cdot \sin^5 x$

№ 7.13 $y = 3x + 8x^6 + 6^x$

№ 7.14 $y = 17 \cdot \operatorname{arctg} 3x$

№ 7.15 $y = 9(\cos 5x + 3x^4)$

№ 7.16 $y = (\sin x)^x$

№ 7.17 $x^3 - y^5 = 1$

№ 7.18 $x = 2 \cos t,$
 $y = 7 \sin t$

№ 7.19 $y = \sin^3(7x - 2)$

№ 7.20 $y = \ln(x + \sqrt{x^2 + 1})$

Wariant №2.

№ 7.1 $y = 5x^7$

№ 7.2 $y = ax^{3,8}$

№ 7.3 $y = 14/x^7$

№ 7.4 $y = \sqrt[4]{x^3}$

№ 7.5 $y = 7x^2 - 3x + 12$

№ 7.6 $y = 2 \sin x + 3 \cos x$

$$\text{№ 7.7} \quad y = x^7 \cdot e^x$$

$$\text{№ 7.8} \quad y = (2x + 1) / (5x - 7)$$

$$\text{№ 7.9} \quad y = 5 \ln 3x$$

$$\text{№ 7.10} \quad y = (13x + 5)^5$$

$$\text{№ 7.11} \quad y = 2^{5x+3}$$

$$\text{№ 7.12} \quad y = 3 \cdot \cos^9 x$$

$$\text{№ 7.13} \quad y = 7x - 5x^4 + 4^x$$

$$\text{№ 7.14} \quad y = 2 \cdot \log_5 7x$$

$$\text{№ 7.15} \quad y = 3(\operatorname{tg} 5x + 2x^8)$$

$$\text{№ 7.16} \quad y = x^{x^4}$$

$$\text{№ 7.17} \quad x^2 + y^2 = 9$$

$$\text{№ 7.18} \quad x = t^2, \quad y = 5t + 1$$

$$\text{№ 7.19} \quad y = \ln \sin(2x + 5)$$

$$\text{№ 7.20} \quad y = x \cdot \operatorname{arctg} x - \ln \sqrt{x^2 + 1}$$

Вариант №3.

$$\text{№ 7.1} \quad y = 4x^{14}$$

$$\text{№ 7.2} \quad y = ax^{9,3}$$

$$\text{№ 7.3} \quad y = 5 / x^4$$

$$\text{№ 7.4} \quad y = \sqrt[6]{x^5}$$

$$\text{№ 7.5} \quad y = 8x^2 - 7x + 1$$

$$\text{№ 7.6} \quad y = 9 \ln x + 5 \cos x$$

$$\text{№ 7.7} \quad y = \cos x \cdot e^x$$

$$\text{№ 7.8} \quad y = (5x + 12) / (3x - 2)$$

$$\text{№ 7.9} \quad y = 12 \cdot \log_5 7x$$

$$\text{№ 7.10} \quad y = (3x + 11)^9$$

$$\text{№ 7.11} \quad y = 6^{2x-13}$$

$$\text{№ 7.12} \quad y = 2 \cdot \operatorname{tg}^6 x$$

$$\text{№ 7.13} \quad y = 14x - 8x^{10} + 10^x$$

$$\text{№ 7.14} \quad y = 17 \cdot \operatorname{arcsin} 5x$$

$$\text{№ 7.15} \quad y = 21(5 \sin 4x - 2x^2)$$

$$\text{№ 7.16} \quad y = x^{3x-7}$$

$$\text{№ 7.17} \quad 3x^5 + 2xy = 7$$

$$\text{№ 7.18} \quad x = 4t - 3, \\ y = 7t + 5$$

$$\text{№ 7.19} \quad y = \cos(7x - 4e^{5x}) \quad \text{№ 7.20} \quad y = \ln \sin \sqrt{x} + 5$$

Wariant №4.

№ 7.1	$y = 3x^5$	№ 7.2	$y = ax^{2,7}$
№ 7.3	$y = 7/x^6$	№ 7.4	$y = \sqrt[5]{x^7}$
№ 7.5	$y = 4x^2 - 7x + 5$	№ 7.6	$y = 6e^x + 11\cos x$
№ 7.7	$y = x^4 \cdot \sin x$	№ 7.8	$y = (6x - 1) / (2x + 5)$
№ 7.9	$y = 13 \cdot \log_2 6x$	№ 7.10	$y = (5x + 12)^7$
№ 7.11	$y = 9^{3x+7}$	№ 7.12	$y = 15 \cdot \sin^3 x$
№ 7.13	$y = 9x - 4x^7 + 7^x$	№ 7.14	$y = 7 \cdot \arccos 5x$
№ 7.15	$y = 3(\ln 7x - 9x^6)$	№ 7.16	$y = (\cos x)^x$
№ 7.17	$x^2 y + y^4 = 3$	№ 7.18	$x = 2t + 5,$ $y = t^2 - 3$
№ 7.19	$y = \cos^2(6x + 5 \ln x)$	№ 7.20	$y = \ln(\operatorname{tg} 3x - 1) + 7 \cos^3 x$

Wariant №5.

№ 7.1	$y = 6x^{10}$	№ 7.2	$y = ax^{7,5}$
№ 7.3	$y = 8/x^5$	№ 7.4	$y = \sqrt[9]{x^8}$
№ 7.5	$y = 5x^2 - 7x + 15$	№ 7.6	$y = 5e^x + 7 \sin x$

$$\text{№ 7.7} \quad y = x^2 \cdot \cos x$$

$$\text{№ 7.8} \quad y = (x^2 - 1) / (x^2 + 1)$$

$$\text{№ 7.9} \quad y = 6 \sin 5x$$

$$\text{№ 7.10} \quad y = (2x - 7)^9$$

$$\text{№ 7.11} \quad y = 7^{2x-5}$$

$$\text{№ 7.12} \quad y = 5 \cdot \ln^7 x$$

$$\text{№ 7.13} \quad y = 4x + 9x^3 - 3^x$$

$$\text{№ 7.14} \quad y = 9 \cdot \arcsin 6x$$

$$\text{№ 7.15} \quad y = 5(\operatorname{tg} 2x - x^5)$$

$$\text{№ 7.16} \quad y = x^{2x^3+1}$$

$$\text{№ 7.17} \quad 2x^4 + 3y^4 = 1$$

$$\text{№ 7.18} \quad x = t^2,$$

$$y = 5t + 1$$

$$\text{№ 7.19} \quad y = \cos(7x^4 - e^{3x-1})$$

$$\text{№ 7.20} \quad y = x \cdot \arctg \sqrt{2x+1}$$

Wariant №6.

$$\text{№ 7.1} \quad y = 9x^6$$

$$\text{№ 7.2} \quad y = ax^{4,5}$$

$$\text{№ 7.3} \quad y = 3/x^9$$

$$\text{№ 7.4} \quad y = \sqrt[8]{x^3}$$

$$\text{№ 7.5} \quad y = 6x^2 - 2x + 3$$

$$\text{№ 7.6} \quad y = 3x^8 + 4 \sin x$$

$$\text{№ 7.7} \quad y = x^3 \cdot \ln x$$

$$\text{№ 7.8} \quad y = x^5 / (x^3 - 1)$$

$$\text{№ 7.9} \quad y = 5 \cos 7x$$

$$\text{№ 7.10} \quad y = (9x - 2)^7$$

$$\text{№ 7.11} \quad y = 3^{4x+9}$$

$$\text{№ 7.12} \quad y = 5 \cdot \sin^4 x$$

$$\text{№ 7.13} \quad y = 12x - 3x^5 + 5^x$$

$$\text{№ 7.14} \quad y = 5 \cdot \log_5(7x + 4)$$

$$\text{№ 7.15} \quad y = 16(7 \cos 5x - 3e^x) \quad \text{№ 7.16} \quad y = (7x - 1)^x$$

$$\text{№ 7.17} \quad 2x^3 + 5y^4 = 7$$

$$\text{№ 7.18} \quad x = \sin^2 t, \\ y = \cos^2 t$$

$$\text{№ 7.19} \quad y = \sin(3x^2 + 5 \ln 6x) \quad \text{№ 7.20} \quad y = \ln(6x + \sqrt{4x^4 + 1})$$

Wariant №7.

№ 7.1 $y = 7x^8$	№ 7.2 $y = ax^{6,5}$
№ 7.3 $y = 9/x^{13}$	№ 7.4 $y = \sqrt[7]{x^9}$
№ 7.5 $y = 3x^2 - 7x + 8$	№ 7.6 $y = 7 \log_3 x + 8e^x$
№ 7.7 $y = \sin x \cdot \ln x$	№ 7.8 $y = (7x + 1) / (3x - 2)$
№ 7.9 $y = 5 \cdot \log_3 2x$	№ 7.10 $y = (16x + 3)^{12}$
№ 7.11 $y = 4^{8x-5}$	№ 7.12 $y = 11 \cdot \cos^7 x$
№ 7.13 $y = 13x + 5x^9 + 9^x$	№ 7.14 $y = 5 \cdot \arctg 2x$
№ 7.15 $y = 15(2x^3 - \cos 7x)$	№ 7.16 $y = (\sin x)^{3x+2}$
№ 7.17 $6x^4 + 5y^3 = 8$	№ 7.18 $x = t^2 + 1,$ $y = 5t - 1$
№ 7.19 $y = \cos(2 + 3 \ln(2x^4 + 7))$	№ 7.20 $y = \sin^3(5e^x + 7x^2)$

Wariant №8.

№ 7.1 $y = 13x^4$	№ 7.2 $y = ax^{4,7}$
№ 7.3 $y = 4/x^8$	№ 7.4 $y = \sqrt[4]{x^7}$
№ 7.5 $y = 7x^2 + 4x - 10$	№ 7.6 $y = 13 \cos x - 5 \sin x$
№ 7.7 $y = x^5 \cdot 5^x$	№ 7.8 $y = (6x - 5) / (3x + 2)$

№ 7.9	$y = 12 \cdot \ln 5x$	№ 7.10	$y = (4x - 3)^6$
№ 7.11	$y = 5^{7x+1}$	№ 7.12	$y = 4 \cdot \sin^5 x$
№ 7.13	$y = 3x - 4x^8 + 8^x$	№ 7.14	$y = 15 \cdot \log_2 5x$
№ 7.15	$y = 7(3x^4 - 5 \operatorname{tg} 6x)$	№ 7.16	$y = x^{3x^2-1}$
№ 7.17	$6x^5 - 7y^4 = 2$	№ 7.18	$x = 2 \sin t,$ $y = 5 \cos t$
№ 7.19	$y = \sin(5 \cdot \ln(7x^2 + 1))$	№ 7.20	$y = \sqrt[3]{e^{2x^2+1} + 7x}$

Wariant №9.

№ 7.1	$y = 6x^3$	№ 7.2	$y = ax^{2,3}$
№ 7.3	$y = 9/x^{12}$	№ 7.4	$y = \sqrt[6]{x^{11}}$
№ 7.5	$y = 15x^2 + 5x - 13$	№ 7.6	$y = 3 \cos x -$ $- 5 \ln x$
№ 7.7	$y = \ln x \cdot e^x$	№ 7.8	$y = (8x - 3)/$ $/(5x + 2)$
№ 7.9	$y = 7 \cdot \log_4 9x$	№ 7.10	$y = (9x - 2)^5$
№ 7.11	$y = 7^{3x-4}$	№ 7.12	$y = 5 \cdot \ln^7 x$
№ 7.13	$y = 7x - 3x^2 + 2^x$	№ 7.14	$y = 8 \cdot \operatorname{arcsin} 7x$
№ 7.15	$y = 7(6x^3 + 5 \sin 2x)$	№ 7.16	$y = (x + 1)^{\sin x}$
№ 7.17	$12x^3 - 7y^5 = 6$	№ 7.18	$x = 6t - 5,$ $y = 3t^2 - 1$
№ 7.19	$y = e^{\sin(x^2+1)}$	№ 7.20	$y = \cos^4(2 \ln x +$ $+ 3x)$

Wariant № 9.

№ 7.1	$y = 7x^{11}$	№ 7.2	$y = ax^{6,1}$
№ 7.3	$y = 2/x^{10}$	№ 7.4	$y = \sqrt[5]{x^6}$
№ 7.5	$y = 17x^2 + 3x - 7$	№ 7.6	$y = 2\cos x - 7e^x$
№ 7.7	$y = x^7 \cdot 7^x$	№ 7.8	$y = (3x + 1) /$ $/(7x - 5)$
№ 7.9	$y = 5 \cdot \log_4 3x$	№ 7.10	$y = (6x - 5)^9$
№ 7.11	$y = 5^{6x+11}$	№ 7.12	$y = 10 \cdot tg^4 x$
№ 7.13	$y = 6x - 5x^{12} + 12^x$	№ 7.14	$y = 8 \cdot \arcsin 7x$
№ 7.15	$y = 5(\ln 4x + 3x^7)$	№ 7.16	$y = (\cos x)^{2x-1}$
№ 7.17	$2x^3 - 7y^5 = 1$	№ 7.18	$x = 5t - 1,$ $y = 3t^2 + 2$
№ 7.19	$y = \sin^3(5e^{4x-1} + 3x^2)$	№ 7.20	$y = 5\sin^2(4x - 1) +$ $+\ln(\cos 7x + 5)$

Wariant №11.

№ 7.1	$y = 5x^{13}$	№ 7.2	$y = ax^{5,6}$
№ 7.3	$y = 3/x^2$	№ 7.4	$y = \sqrt[9]{x^{11}}$
№ 7.5	$y = 17x^2 + 9x - 17$	№ 7.6	$y = 9\sin x - 4e^x$
№ 7.7	$y = \cos x \cdot \ln x$	№ 7.8	$y = (x^2 + 5) /$ $/(x^2 - 3)$
№ 7.9	$y = 15\sin 6x$	№ 7.10	$y = (7x + 1)^6$
№ 7.11	$y = 8^{3x-7}$	№ 7.12	$y = 3 \cdot \log_2^5 x$
№ 7.13	$y = 2x + 7x^{12} - 12^x$	№ 7.14	$y = 12 \cdot \arccos 12x$
№ 7.15	$y = 9(2x^7 + tg 3x)$	№ 7.16	$y = (2x - 1)^{\cos x}$

$$\text{№ 7.17} \quad 5x^4 - 8y^2 = 7$$

$$\text{№ 7.18} \quad x = 2t + 5,$$

$$y = t^2 - 3$$

$$\text{№ 7.19} \quad y = \sin(6x^7 + 5e^{6x+5}) \quad \text{№ 7.20} \quad y = \ln \sqrt{\sin(2x-7)} + \sqrt{3e^{5x+1}}$$

Вариант №12.

$$\text{№ 7.1} \quad y = 4x^9$$

$$\text{№ 7.2} \quad y = ax^{3,5}$$

$$\text{№ 7.3} \quad y = 5/x^{11}$$

$$\text{№ 7.4} \quad y = \sqrt[8]{x^5}$$

$$\text{№ 7.5} \quad y = 19x^2 + 7x - 1$$

$$\text{№ 7.6} \quad y = 12\sin x - 7x^9$$

$$\text{№ 7.7} \quad y = x^4 \cdot \operatorname{tg} x$$

$$\text{№ 7.8} \quad y = (x^4 + 1) / (x^3 + 7)$$

$$\text{№ 7.9} \quad y = 11 \cdot \cos 5x$$

$$\text{№ 7.10} \quad y = (3x - 1)^8$$

$$\text{№ 7.11} \quad y = 7^{2x+13}$$

$$\text{№ 7.12} \quad y = 7 \cdot \ln^3 x$$

$$\text{№ 7.13} \quad y = 7x - 5x^{11} + 11^x$$

$$\text{№ 7.14} \quad y = 8 \cdot \arccos 5x$$

$$\text{№ 7.15} \quad y = 2(5e^x + 6\cos 5x) \quad \text{№ 7.16} \quad y = (3x + 2)^x$$

$$\text{№ 7.17} \quad 6x^2 - 11y^3 = 5$$

$$\text{№ 7.18} \quad x = \cos t, \\ y = \sin t$$

$$\text{№ 7.19} \quad y = e^{\cos(3x^4+4)}$$

$$\text{№ 7.20} \quad y = \operatorname{tg}(\sqrt{3x^2+7} + 5x^3)$$

Вариант №13.

$$\text{№ 7.1} \quad y = 20x^{15}$$

$$\text{№ 7.2} \quad y = ax^{9,6}$$

$$\text{№ 7.3} \quad y = 20/x^{15}$$

$$\text{№ 7.4} \quad y = \sqrt[3]{x^7}$$

$$\text{№ 7.5} \quad y = 32x^2 + 10x - 9$$

$$\text{№ 7.6} \quad y = 18\log_4 x + 11x^6$$

$$\text{№ 7.7} \quad y = 4^x \cdot \sin x$$

$$\text{№ 7.8} \quad y = (9x + 4)/(x^4 + 6)$$

№ 7.9	$y = 2 \cdot \cos 15x$	№ 7.10	$y = (4x + 15)^{12}$
№ 7.11	$y = 3^{6x+17}$	№ 7.12	$y = 32 \cdot \sin^8 x$
№ 7.13	$y = 16x - 3x^{20} + 20^x$	№ 7.14	$y = 17 \cdot \arctg 9x$
№ 7.15	$y = 8(13e^x + 6 \ln x)$	№ 7.16	$y = (\sin x + 5)^x$
№ 7.17	$3x^6 + 4y^7 = 2$	№ 7.18	$x = t^3 - 4, \quad y = 3t + 2$
№ 7.19	$y = 5^{\sin(x^2+8)}$	№ 7.20	$y = \sin(2e^{12x-1} + 11x^3)$

Вариант №14.

№ 7.1	$y = 2x^{32}$	№ 7.2	$y = ax^{12,5}$
№ 7.3	$y = 4/x^{32}$	№ 7.4	$y = \sqrt[4]{x^{25}}$
№ 7.5	$y = 25x^2 - 4x + 6$	№ 7.6	$y = 13 \ln x - 2 \cos x$
№ 7.7	$y = 8^x \cdot \sin x$	№ 7.8	$y = (x + 2)/(6x - 1)$
№ 7.9	$y = 3 \cdot \log_6(2x + 15)$	№ 7.10	$y = (8x - 9)^{16}$
№ 7.11	$y = 4^{5x-4}$	№ 7.12	$y = 7 \cdot \sin^3 x$
№ 7.13	$y = 32x - 9x^3 + 3^x$	№ 7.14	$y = 5 \cdot \arccos 2x$
№ 7.15	$y = 21(2 \cos 13x - 6x^{13})$	№ 7.16	$y = (4x + 31)^x$
№ 7.17	$4x^6 + 7y^5 = 1$	№ 7.18	$x = 3t + 8, \quad y = 4t + 17$
№ 7.19	$y = \operatorname{tg}(3x - 16e^{9x})$	№ 7.20	$y = \sin^5(2\sqrt{x-9} + 5)$

Вариант №15.

№ 7.1	$y = 32x^7$	№ 7.2	$y = ax^{6,1}$
№ 7.3	$y = 7/x^7$	№ 7.4	$y = \sqrt[10]{x^{13}}$
№ 7.5	$y = 16x^2 - 9x + 1$	№ 7.6	$y = 21e^x - 22 \sin x$

№ 7.7	$y = x^6 \cdot \ln x$	№ 7.8	$y = (x^2 + 6)/(x^2 - 5)$
№ 7.9	$y = 14 \cos 8x$	№ 7.10	$y = (3x - 19)^{12}$
№ 7.11	$y = 6^{4x+13}$	№ 7.12	$y = 2 \cdot \log_9^3 x$
№ 7.13	$y = 15x - 4x^{23} - 23^x$	№ 7.14	$y = 5 \cdot \arcsin 3x$
№ 7.15	$y = 13(3 \sin 2x - 4x^9)$	№ 7.16	$y = x^{x^5-3}$
№ 7.17	$x^2 + 4y^2 = 4$	№ 7.18	$x = 2t + 11, \quad y = 3t - 8$
№ 7.19	$y = \operatorname{tg}(2x^5 + 8^{4x-3})$	№ 7.20	$y = x \cdot \sin^2 x + \ln \sqrt{3x-4}$

Вариант №16.

№ 7.1	$y = 9x^{21}$	№ 7.2	$y = ax^{5,4}$
№ 7.3	$y = 9/x^{21}$	№ 7.4	$y = \sqrt[8]{x^{21}}$
№ 7.5	$y = 2x^2 - 6x + 13$	№ 7.6	$y = 6x^{12} + 5 \sin x$
№ 7.7	$y = x^{13} \cdot \log_5 x$	№ 7.8	$y = x^6 / (2x^3 - 3)$
№ 7.9	$y = 6 \cos 21x$	№ 7.10	$y = (21x - 17)^5$
№ 7.11	$y = 5^{3x+7}$	№ 7.12	$y = 14 \cdot \sin^{11} x$
№ 7.13	$y = 21x - 7x^{21} + 21^x$	№ 7.14	$y = 6 \cdot \log_9(11x + 3)$
№ 7.15	$y = 8(4 \cos 7x - 5e^x)$	№ 7.16	$y = (2x - 5)^x$
№ 7.17	$5x^2 + 12y^3 = 1$	№ 7.18	$x = 2 \sin t + 1,$ $y = 3 \cos t - 1$
№ 7.19	$y = \sin(6x^3 + 7 \ln 12x)$	№ 7.20	$y = 8 \ln(3x^2 +$ $+ \sqrt{9x^4 + 4})$

Вариант №17.

№ 7.1	$y = 6x^{24}$	№ 7.2	$y = ax^{3,2}$
№ 7.3	$y = 6/x^{24}$	№ 7.4	$y = \sqrt[3]{x^{14}}$

$$\text{№ 7.5 } y = 5x^2 + 13x - 6$$

$$\text{№ 7.7 } y = \log_7 x \cdot e^x$$

$$\text{№ 7.9 } y = 8 \cdot \ln(6x - 5)$$

$$\text{№ 7.11 } y = 7^{6x-5}$$

$$\text{№ 7.13 } y = 24x - 3x^{24} + 24^x$$

$$\text{№ 7.15 } y = 9(5x^2 + 8 \sin 3x)$$

$$\text{№ 7.17 } 2x^4 - 11y^4 = 1$$

$$\text{№ 7.19 } y = e^{2 \sin(x^2+3)}$$

$$\text{№ 7.6 } y = 6 \cos x - 17 \ln x$$

$$\text{№ 7.8 } y = (5x - 1)/(8x + 3)$$

$$\text{№ 7.10 } y = (24x - 17)^6$$

$$\text{№ 7.12 } y = 25 \cdot \ln^8 x$$

$$\text{№ 7.14 } y = 6 \cdot \arcsin 11x$$

$$\text{№ 7.16 } y = (2x + 7)^{\sin x}$$

$$\text{№ 7.18 } x = 3t - 8, \quad y = 5t^2 - 2$$

$$\text{№ 7.20 } y = 2 \cos^6(3 \ln x + 13x)$$

Wariant №18.

$$\text{№ 7.1 } y = 4x^{27}$$

$$\text{№ 7.3 } y = 5/x^{27}$$

$$\text{№ 7.5 } y = 9x^2 + 4x - 11$$

$$\text{№ 7.7 } y = x^9 \cdot \operatorname{tg} x$$

$$\text{№ 7.9 } y = 18 \cdot \cos 4x$$

$$\text{№ 7.11 } y = 7^{5x+8}$$

$$\text{№ 7.13 } y = 27x - 5x^{27} + 27^x$$

$$\text{№ 7.15 } y = 3(4e^x - 5 \cos 6x)$$

$$\text{№ 7.17 } 2x^2 - 9y^4 = 6$$

$$\text{№ 7.19 } y = e^{\cos(8x^5+7)}$$

$$\text{№ 7.2 } y = ax^{5,3}$$

$$\text{№ 7.4 } y = \sqrt[8]{x^{27}}$$

$$\text{№ 7.6 } y = 2 \sin x - 5x^{13}$$

$$\text{№ 7.8 } y = (x^3 + 6)/(x^4 + 11)$$

$$\text{№ 7.10 } y = (27x - 8)^{10}$$

$$\text{№ 7.12 } y = 13 \cdot \log_2^5 x$$

$$\text{№ 7.14 } y = 9 \cdot \arccos 14x$$

$$\text{№ 7.16 } y = (5x - 3)^x$$

$$\text{№ 7.18 } x = \cos t + 3,$$

$$y = \sin t - t$$

$$\text{№ 7.20 } y = 2 \operatorname{tg}(\sqrt{2x^3 + 9} + 7x^5)$$

Wariant №19.

$$\text{№ 7.1 } y = 6x^{16}$$

$$\text{№ 7.2 } y = ax^{6,7}$$

$$\text{№ 7.3 } y = 13/x^{16}$$

$$\text{№ 7.4 } y = \sqrt[7]{x^{16}}$$

$$\text{№ 7.5 } y = 5x^2 + 7x - 17$$

$$\text{№ 7.6 } y = 3e^x + 5\ln x$$

$$\text{№ 7.7 } y = 6^x \cdot \sin x$$

$$\text{№ 7.8 } y = (2x - 7)/(4x + 3)$$

$$\text{№ 7.9 } y = 14 \cdot \log_4 9x$$

$$\text{№ 7.10 } y = (16x - 7)^{13}$$

$$\text{№ 7.11 } y = 6^{7x+5}$$

$$\text{№ 7.12 } y = 11 \cdot \cos^7 x$$

$$\text{№ 7.13 } y = 16x + 3x^{16} + 16^x$$

$$\text{№ 7.14 } y = 15 \cdot \arctg 8x$$

$$\text{№ 7.15 } y = 3(\cos 2x + 5x^7)$$

$$\text{№ 7.16 } y = (\sin x)^{2x+1}$$

$$\text{№ 7.17 } 2x^3 - 4y^2 = 9$$

$$\text{№ 7.18 } x = 5 \cos t,$$

$$y = 6 \sin t$$

$$\text{№ 7.19 } y = \sin^4(6x + 5)$$

$$\text{№ 7.20 } y = \ln(2x + \sqrt{4x^2 + 25})$$

Wariant №20.

$$\text{№ 7.1 } y = 9x^{17}$$

$$\text{№ 7.2 } y = ax^{8,3}$$

$$\text{№ 7.3 } y = 11/x^{17}$$

$$\text{№ 7.4 } y = \sqrt[4]{x^{17}}$$

$$\text{№ 7.5 } y = 6x^2 - 5x + 8$$

$$\text{№ 7.6 } y = 5 \sin x - 8 \cos x$$

$$\text{№ 7.7 } y = x^9 \cdot 5^x$$

$$\text{№ 7.8 } y = (7x + 2)/(4x - 3)$$

$$\text{№ 7.9 } y = 14 \ln 7x$$

$$\text{№ 7.10 } y = (7x + 2)^7$$

$$\text{№ 7.11 } y = 7^{9x+5}$$

$$\text{№ 7.12 } y = 6 \cdot \cos^{16} x$$

$$\text{№ 7.13 } y = 2x - x^{17} + 17^x$$

$$\text{№ 7.14 } y = 4 \cdot \log_4 9x$$

$$\text{№ 7.15 } y = 7(\operatorname{tg} 9x - 3x^{13})$$

$$\text{№ 7.16 } y = x^{2x-7}$$

$$\text{№ 7.17 } 5x^6 + 3y^4 = 1$$

$$\text{№ 7.18 } x = 2t^2 - 4,$$

$$y = 6t + 11$$

$$\text{№ 7.19 } y = 2 \ln \sin(5x - 3) \quad \text{№ 7.20 } y = 3x^2 \cdot \arctg x - \\ - 2 \ln \sqrt{x^2 - 4}$$

Wariant №21.

$$\begin{array}{ll} \text{№ 7.1 } y = 7x^{18} & \text{№ 7.2 } y = ax^{3,9} \\ \text{№ 7.3 } y = 8/x^{18} & \text{№ 7.4 } y = \sqrt[7]{x^{18}} \\ \text{№ 7.5 } y = 5x^2 - 6x + 10 & \text{№ 7.6 } y = 5 \ln x - 9 \cos x \\ \text{№ 7.7 } y = \cos x \cdot 8^x & \text{№ 7.8 } y = (x + 7)/(5x + 3) \\ \text{№ 7.9 } y = 16 \cdot \log_6(3x + 1) & \text{№ 7.10 } y = (18x + 3)^7 \\ \text{№ 7.11 } y = 3^{5x-12} & \text{№ 7.12 } y = 3 \cdot \tg^9 x \\ \text{№ 7.13 } y = 18x - 3x^{18} + 18^x & \text{№ 7.14 } y = 12 \cdot \arcsin 3x \\ \text{№ 7.15 } y = 7(6 \sin 3x + 5x^3) & \text{№ 7.16 } y = (x + 1)^{x-1} \\ \text{№ 7.17 } x^4 + 5y^3 = 6 & \text{№ 7.18 } x = 6t - 1, \quad y = t + 3 \\ \text{№ 7.19 } y = \cos(6x + 5e^{7x+1}) & \text{№ 7.20 } y = (x + \ln \sin 5x)^5 \end{array}$$

Wariant №22.

$$\begin{array}{ll} \text{№ 7.1 } y = 2x^{19} & \text{№ 7.2 } y = ax^{7,2} \\ \text{№ 7.3 } y = 3/x^{19} & \text{№ 7.4 } y = \sqrt[5]{x^{19}} \\ \text{№ 7.5 } y = 6x^2 - 8x + 11 & \text{№ 7.6 } y = 7e^x + 8 \cos x \\ \text{№ 7.7 } y = x^7 \cdot \sin x & \text{№ 7.8 } y = (2x + 3)/(5x - 3) \\ \text{№ 7.9 } y = 5 \cdot \log_3(8x - 1) & \text{№ 7.10 } y = (19x + 3)^8 \\ \text{№ 7.11 } y = 10^{6x+1} & \text{№ 7.12 } y = 14 \cdot \sin^6 x \\ \text{№ 7.13 } y = 19x - 3x^{19} + 19^x & \text{№ 7.14 } y = 8 \cdot \arccos 9x \\ \text{№ 7.15 } y = 8(\ln 5x - 3x^{12}) & \text{№ 7.16 } y = (\cos x)^{2x+5} \\ \text{№ 7.17 } 2x^3 + 7y^2 = 1 & \text{№ 7.18 } x = 5t + 11, \\ & y = 3t^2 - 8 \end{array}$$

$$\text{№ 7.19 } y = 2 \cos^3(7x + 3 \ln x) \quad \text{№ 7.20 } y = 7 \ln(\operatorname{tg} 5x + 3) - 9 \cos^5 x$$

Wariant №23.

$$\text{№ 7.1 } y = 7x^{20}$$

$$\text{№ 7.2 } y = ax^{5,7}$$

$$\text{№ 7.3 } y = 6/x^{20}$$

$$\text{№ 7.4 } y = \sqrt[9]{x^{20}}$$

$$\text{№ 7.5 } y = 3x^2 - 11x + 7$$

$$\text{№ 7.6 } y = 6e^x - 15 \sin x$$

$$\text{№ 7.7 } y = x^8 \cdot \cos x$$

$$\text{№ 7.8 } y = (x^2 - 5)/(x^2 + 7)$$

$$\text{№ 7.9 } y = 18 \sin 9x$$

$$\text{№ 7.10 } y = (20x - 3)^6$$

$$\text{№ 7.11 } y = 8^{5x-6}$$

$$\text{№ 7.12 } y = 11 \cdot \ln^{12} x$$

$$\text{№ 7.13 } y = 20x + 5x^{20} - 20^x$$

$$\text{№ 7.14 } y = 3 \cdot \arcsin 8x$$

$$\text{№ 7.15 } y = 4(\operatorname{tg} 9x + 5x^8)$$

$$\text{№ 7.16 } y = (x - 5)^{x+3}$$

$$\text{№ 7.17 } 3x^7 + 4y^5 = 2$$

$$\text{№ 7.18 } x = t^2 - 5,$$

$$y = 6t + 19$$

$$\text{№ 7.19 } y = \ln \operatorname{tg}^3 2x$$

$$\text{№ 7.20 } y = \sqrt{4 - x^2} + \arcsin(5x - 2)$$

Wariant №24.

$$\text{№ 7.1 } y = 5x^{22}$$

$$\text{№ 7.2 } y = ax^{5,6}$$

$$\text{№ 7.3 } y = 7/x^{22}$$

$$\text{№ 7.4 } y = \sqrt[7]{x^{22}}$$

$$\text{№ 7.5 } y = 5x^2 - 18x + 13$$

$$\text{№ 7.6 } y = 6 \log_5 x + 5e^x$$

$$\text{№ 7.7 } y = 3^x \cdot \ln x$$

$$\text{№ 7.8 } y = (5x + 9)/(4x - 3)$$

$$\text{№ 7.9 } y = 9 \cdot \log_5 12x$$

$$\text{№ 7.10 } y = (22x + 1)^{11}$$

$$\text{№ 7.11 } y = 3^{6x-7}$$

$$\text{№ 7.12 } y = 13 \cdot \cos^9 x$$

$$\text{№ 7.13 } y = 22x + 5x^{22} + 22^x$$

$$\text{№ 7.14 } y = 6 \cdot \operatorname{arctg} 4x$$

$$\text{№ 7.15 } y = 13(5x^4 - 3 \cos 8x) \quad \text{№ 7.16 } y = (\sin x)^{4x-5}$$

$$\text{№ 7.17 } 2x^3 + 9y^4 = 3$$

$$\text{№ 7.18 } x = 5t^2 + 6,$$

$$y = 6t + 11$$

$$\text{№ 7.19 } y = \ln \cos(1 - 2x)$$

$$\text{№ 7.20 } y = 2\sin^5(4e^x + 9x^3)$$

Wariant №25.

$$\text{№ 7.1 } y = 9x^{23}$$

$$\text{№ 7.2 } y = ax^{7,4}$$

$$\text{№ 7.3 } y = 9/x^{23}$$

$$\text{№ 7.4 } y = \sqrt[4]{x^{23}}$$

$$\text{№ 7.5 } y = 3x^2 + 11x - 9$$

$$\text{№ 7.6 } y = 17\cos x + 4\sin x$$

$$\text{№ 7.7 } y = x^{13} \cdot 8^x$$

$$\text{№ 7.8 } y = (5x + 4)/(6x + 1)$$

$$\text{№ 7.9 } y = 7 \cdot \ln 6x$$

$$\text{№ 7.10 } y = (23x - 9)^{14}$$

$$\text{№ 7.11 } y = 3^{5x+7}$$

$$\text{№ 7.12 } y = 2 \cdot \sin^{16} x$$

$$\text{№ 7.13 } y = 23x - 4x^{23} + 23^x$$

$$\text{№ 7.14 } y = 16 \cdot \log_4 17x$$

$$\text{№ 7.15 } y = 6(2x^8 + 3\operatorname{tg} 14x)$$

$$\text{№ 7.16 } y = (2x + 3)^{3x-1}$$

$$\text{№ 7.17 } 7x^3 - 11y^4 = 3$$

$$\text{№ 7.18 } x = 3\sin t - t,$$

$$y = 7\cos t + 3$$

$$\text{№ 7.19 } y = \sin(6 \cdot \ln(4x^4 + 3))$$

$$\text{№ 7.20 } y = \sqrt[5]{e^{-x^3+3} + 9x^2}$$

Wariant №26.

$$\text{№ 7.1 } y = 2x^{25}$$

$$\text{№ 7.2 } y = ax^{1,6}$$

$$\text{№ 7.3 } y = 2/x^{25}$$

$$\text{№ 7.4 } y = \sqrt[3]{x^{25}}$$

$$\text{№ 7.5 } y = 2x^2 + 9x - 11$$

$$\text{№ 7.6 } y = 4\cos x - 11e^x$$

$$\text{№ 7.7 } y = x^6 \cdot 8^x$$

$$\text{№ 7.8 } y = (7x + 3)/(3x - 1)$$

$$\text{№ 7.9 } y = 12 \cdot \log_7 6x$$

$$\text{№ 7.10 } y = (25x + 7)^5$$

$$\text{№ 7.11 } y = 2^{8x-1}$$

$$\text{№ 7.12 } y = 16 \cdot \operatorname{tg}^6 x$$

$$\text{№ 7.13 } y = 25x - 2x^{25} + 25^x$$

$$\text{№ 7.14 } y = 6 \cdot \arcsin 13x$$

$$\text{№ 7.15 } y = 4(\ln 17x + 2x^9)$$

$$\text{№ 7.16 } y = (\cos x)^{5x+3}$$

$$\text{№ 7.17 } 3x^2 - 5y^3 = 2$$

$$\text{№ 7.18 } x = t + \sin t,$$

$$y = 1 - \cos t$$

$$\text{№ 7.19 } y = \sin^7(6e^{2x+1} - 2x^3)$$

$$\text{№ 7.20 } y = \sqrt{1-4x^2} \arctg 5x$$

Вариант №27.

$$\text{№ 7.1 } y = 5x^{26}$$

$$\text{№ 7.2 } y = ax^{9,5}$$

$$\text{№ 7.3 } y = 5/x^{26}$$

$$\text{№ 7.4 } y = \sqrt[9]{x^{26}}$$

$$\text{№ 7.5 } y = 7x^2 + 5x - 19$$

$$\text{№ 7.6 } y = 4\sin x + 7e^x$$

$$\text{№ 7.7 } y = 6^x \cdot \cos x$$

$$\text{№ 7.8 } y = (x^3 + 3)/(x^3 - 1)$$

$$\text{№ 7.9 } y = 14\sin 8x$$

$$\text{№ 7.10 } y = (26x + 9)^8$$

$$\text{№ 7.11 } y = 4^{5x+7}$$

$$\text{№ 7.12 } y = 2 \cdot \log_3^4 x$$

$$\text{№ 7.13 } y = 26x + 7x^{26} - 26^x$$

$$\text{№ 7.14 } y = 9 \cdot \arccos 4x$$

$$\text{№ 7.15 } y = 4(3x^8 + 2tg 5x)$$

$$\text{№ 7.16 } y = (4x + 9)^{\cos x}$$

$$\text{№ 7.17 } 2x^4 - 7y^2 = 3$$

$$\text{№ 7.18 } x = 5t + 2,$$

$$y = 2t^2 - t$$

$$\text{№ 7.19 } y = \sin(8x^5 + 6e^{5x+3})$$

$$\text{№ 7.20 } y = (4x^2 + 1) \arctg 7x$$

Вариант №28.

$$\text{№ 7.1 } y = 3x^{28}$$

$$\text{№ 7.2 } y = ax^{6,9}$$

$$\text{№ 7.3 } y = 3/x^{28}$$

$$\text{№ 7.4 } y = \sqrt[3]{x^{28}}$$

$$\text{№ 7.5 } y = 3x^2 + 16x - 8$$

$$\text{№ 7.6 } y = 7\log_7 x + 13x^9$$

$$\text{№ 7.7 } y = 10^x \cdot \sin x$$

$$\text{№ 7.8 } y = (4x + 9)/(x^4 + 1)$$

$$\text{№ 7.9 } y = 8 \cdot \cos 7x$$

$$\text{№ 7.10 } y = (28x + 7)^{11}$$

$$\text{№ 7.11 } y = 3^{8x+9}$$

$$\text{№ 7.12 } y = 12 \cdot \sin^9 x$$

$$\text{№ 7.13 } y = 28x - 3x^{28} + 28^x$$

$$\text{№ 7.14 } y = 5 \cdot \arctg 28x$$

$$\text{№ 7.15 } y = 5(10e^x + 7 \ln x)$$

$$\text{№ 7.16 } y = (2\sin x + 3)^x$$

$$\text{№ 7.17 } 9x^7 + y^6 = 7$$

$$\text{№ 7.18 } x = 2t^3 - 1,$$

$$y = 6t + 5$$

$$\text{№ 7.19 } y = 6^{\sin(2x^2+1)}$$

$$\text{№ 7.20 } y = \sin(6e^{2x+9} - 13x^2)$$

Wariant №29.

$$\text{№ 7.1 } y = 2x^{29}$$

$$\text{№ 7.2 } y = ax^{5,1}$$

$$\text{№ 7.3 } y = 2/x^{29}$$

$$\text{№ 7.4 } y = \sqrt[4]{x^{29}}$$

$$\text{№ 7.5 } y = 5x^2 - 13x + 7$$

$$\text{№ 7.6 } y = 3\ln x + 5\cos x$$

$$\text{№ 7.7 } y = 12^x \cdot \sin x$$

$$\text{№ 7.8 } y = (2x+7)/(3x-5)$$

$$\text{№ 7.9 } y = 9 \cdot \log_4(5x-1)$$

$$\text{№ 7.10 } y = (5x-13)^{17}$$

$$\text{№ 7.11 } y = 3^{7x+3}$$

$$\text{№ 7.12 } y = 6 \cdot \sin^8 x$$

$$\text{№ 7.13 } y = 29x - 5x^{29} + 29^x$$

$$\text{№ 7.14 } y = 9 \cdot \arccos 11x$$

$$\text{№ 7.15 } y = 3(5\cos 11x + 2x^{12})$$

$$\text{№ 7.16 } y = (6x+23)^x$$

$$\text{№ 7.17 } 2x^7 + 5y^3 = 3$$

$$\text{№ 7.18 } x = 6t + 7,$$

$$y = 3t - 8$$

$$\text{№ 7.19 } y = \operatorname{tg}(5x - 2e^{7x})$$

$$\text{№ 7.20 } y = 2\sin^7(3\sqrt{x-1}+8)$$

Wariant №30.

$$\text{№ 7.1 } y = 6x^{30}$$

$$\text{№ 7.2 } y = ax^{1,6}$$

$$\text{№ 7.3 } y = 6/x^{30}$$

$$\text{№ 7.4 } y = \sqrt[7]{x^{30}}$$

$$\text{№ 7.5 } y = 2x^2 - 11x + 13$$

$$\text{№ 7.6 } y = 5e^x + 18\sin x$$

$$\text{№ 7.7 } y = x^{14} \cdot \ln x$$

$$\text{№ 7.8 } y = (x^2+8)/(x^2+3)$$

$$\text{№ 7.9 } y = 5\cos 14x$$

$$\text{№ 7.10 } y = (30x-13)^{16}$$

$$\text{№ 7.11 } y = 11^{8x-1}$$

$$\text{№ 7.12 } y = 5 \cdot \log_8^2 x$$

$$\text{№ 7.13 } y = 30x - 4x^{30} - 30^x$$

$$\text{№ 7.14 } y = 9 \cdot \arcsin 5x$$

$$\text{№ 7.15 } y = 8(5\sin 3x - 7x^{11})$$

$$\text{№ 7.16 } y = (3x-2)^{x+2}$$

$$\text{№ 7.17 } 2x^3 + 5y^4 = 7$$

$$\text{№ 7.18 } x = 4t + 7,$$

$$y = 5t - 2$$

$$\text{№ 7.19 } y = \ln^4(1 + e^{x/3})$$

$$\text{№ 7.20 } y = 2x \cdot \sin^3 x + \\ + 3 \ln \sqrt{2x - 1}$$

Özbaşdak iş №8

Funksiýanyň doly derňewi

Funksiýany doly derňemeli we grafigini gurmaly.

Wariantlar:

$$\text{№ 1 } y = -2x + 1 - \frac{2}{x^2}$$

$$\text{№ 16 } y = 2x + 2 + \frac{1}{x^2}$$

$$\text{№ 2 } y = x + 2 - \frac{2}{x^2}$$

$$\text{№ 17 } y = -2x + 2 - \frac{2}{x^2}$$

$$\text{№ 3 } y = -x + 1 + \frac{1}{x^2}$$

$$\text{№ 18 } y = x + 1 + \frac{2}{x^2}$$

$$\text{№ 4 } y = 2x + 2 - \frac{1}{x^2}$$

$$\text{№ 19 } y = -x + 1 - \frac{1}{x^2}$$

$$\text{№ 5 } y = -2x + 1 - \frac{1}{x^2}$$

$$\text{№ 20 } y = 2x + 1 - \frac{2}{x^2}$$

$$\text{№ 6 } y = x + 2 - \frac{1}{x^2}$$

$$\text{№ 21 } y = -2x + 2 - \frac{1}{x^2}$$

$$\text{№ 7 } y = -x + 1 + \frac{2}{x^2}$$

$$\text{№ 22 } y = x + 1 + \frac{1}{x^2}$$

$$\text{№ 8 } y = 2x + 2 - \frac{2}{x^2}$$

$$\text{№ 23 } y = -x + 1 - \frac{2}{x^2}$$

$$\text{№ 9} \quad y = -2x + 1 + \frac{1}{x^2}$$

$$\text{№ 10} \quad y = x + 2 + \frac{1}{x^2}$$

$$\text{№ 11} \quad y = -x + 2 - \frac{2}{x^2}$$

$$\text{№ 12} \quad y = 2x + 1 + \frac{2}{x^2}$$

$$\text{№ 13} \quad y = -2x + 1 + \frac{2}{x^2}$$

$$\text{№ 14} \quad y = x + 2 + \frac{2}{x^2}$$

$$\text{№ 15} \quad y = -x + 2 - \frac{1}{x^2}$$

$$\text{№ 24} \quad y = 2x + 1 - \frac{1}{x^2}$$

$$\text{№ 25} \quad y = -2x + 2 + \frac{2}{x^2}$$

$$\text{№ 26} \quad y = x + 1 - \frac{2}{x^2}$$

$$\text{№ 27} \quad y = -x + 2 + \frac{2}{x^2}$$

$$\text{№ 28} \quad y = 2x + 1 + \frac{1}{x^2}$$

$$\text{№ 29} \quad y = -2x + 2 + \frac{1}{x^2}$$

$$\text{№ 30} \quad y = x + 1 - \frac{1}{x^2}$$

Özbaşdak iş №9

Kesgitsiz integral

Kesgitsiz integrallary hasaplamaly.

Wariant №1.

$$\text{№ 9.1} \quad \int 8x^{12} dx$$

$$\text{№ 9.2} \quad \int ax^{7,6} dx$$

$$\text{№ 9.3} \quad \int 5/x^3 dx$$

$$\text{№ 9.4} \quad \int \sqrt[7]{x^5} dx$$

$$\text{№ 9.5} \quad \int (9x + 2) dx$$

$$\text{№ 9.6} \quad \int (3x^2 + 12x - 5) dx$$

$$\text{№ 9.7} \quad \int (5e^x - 8\sin x) dx$$

$$\text{№ 9.8} \quad \int (3x + 8x^6 + 6^x) dx$$

$$\text{№ 9.9} \quad \int \frac{dx}{x^2 + 4}$$

$$\text{№ 9.10} \quad \int \frac{dx}{\sqrt{x^2 - 49}}$$

$$\text{№ 9.11} \int \frac{dx}{2x^2 - 5}$$

$$\text{№ 9.12} \int \frac{7x-3}{x+1} dx$$

$$\text{№ 9.13} \int 5^{6x-7} dx$$

$$\text{№ 9.14} \int (10x-3)^9 dx$$

$$\text{№ 9.15} \int 9(\cos 5x + 3x^4) dx$$

$$\text{№ 9.16} \int \sin^5 x \cos x dx$$

$$\text{№ 9.17} \int (2x+9) \cdot e^x dx$$

$$\text{№ 9.18} \int x^7 \ln x dx$$

$$\text{№ 9.19} \int \log_2 3x dx$$

$$\text{№ 9.20} \int 11^x \sin x dx$$

Wariant №2.

$$\text{№ 9.1} \int 5x^7 dx$$

$$\text{№ 9.2} \int ax^{3,8} dx$$

$$\text{№ 9.3} \int 14/x^7 dx$$

$$\text{№ 9.4} \int \sqrt[4]{x^3} dx$$

$$\text{№ 9.5} \int (8x-3) dx$$

$$\text{№ 9.6} \int (7x^2 - 3x + 12) dx$$

$$\text{№ 9.7} \int (2 \sin x + 3 \cos x) dx$$

$$\text{№ 9.8} \int (7x - 3x^4 + 4^x) dx$$

$$\text{№ 9.9} \int \frac{dx}{x^2 - 4}$$

$$\text{№ 9.10} \int \frac{dx}{\sqrt{x^2 + 49}}$$

$$\text{№ 9.11} \int \frac{dx}{2x^2 + 5}$$

$$\text{№ 9.12} \int \frac{10x+1}{5x-7} dx$$

$$\text{№ 9.13} \int 2^{5x+3} dx$$

$$\text{№ 9.14} \int (13x+5)^9 dx$$

$$\text{№ 9.15} \int 3(2 \sin 5x + 2x^8) dx$$

$$\text{№ 9.16} \int \cos^6 x \sin x dx$$

$$\text{№ 9.17} \int (3x-8) \cdot e^x dx$$

$$\text{№ 9.18} \int x^8 \ln x dx$$

$$\text{№ 9.19} \int \log_3 4x dx$$

$$\text{№ 9.20} \int 12^x \cos x dx$$

Wariant №3.

№ 9.1 $\int 4x^{14} dx$

№ 9.2 $\int ax^{9,3} dx$

№ 9.3 $\int 5/x^4 dx$

№ 9.4 $\int \sqrt[6]{x^5} dx$

№ 9.5 $\int (7x+5)dx$

№ 9.6 $\int (8x^2 - 7x + 1)dx$

№ 9.7 $\int (9e^x + 5\cos x)dx$

№ 9.8 $\int (14x - 8x^{10} + 10^x)dx$

№ 9.9 $\int \frac{dx}{x^2 - 9}$

№ 9.10 $\int \frac{dx}{\sqrt{x^2 + 36}}$

№ 9.11 $\int \frac{dx}{5x^2 + 8}$

№ 9.12 $\int \frac{6x+11}{3x-2} dx$

№ 9.13 $\int 6^{2x-13} dx$

№ 9.14 $\int (3x+11)^9 dx$

№ 9.15 $\int 21(5\sin 4x - 2x^2)dx$

№ 9.16 $\int \sin^7 x \cos x dx$

№ 9.17 $\int (5x-7) \cdot e^x dx$

№ 9.18 $\int x^9 \ln x dx$

№ 9.19 $\int \log_4 5x dx$

№ 9.20 $\int 13^x \sin x dx$

Wariant №4.

№ 9.1 $\int 3x^5 dx$

№ 9.2 $\int ax^{2,7} dx$

№ 9.3 $\int 7/x^6 dx$

№ 9.4 $\int \sqrt[5]{x^7} dx$

№ 9.5 $\int (6x-13)dx$

№ 9.6 $\int (4x^2 - 7x + 5)dx$

№ 9.7 $\int (6e^x + 11\cos x)dx$

№ 9.8 $\int (9x - 4x^7 + 7^x)dx$

№ 9.9 $\int \frac{dx}{x^2 + 9}$

№ 9.10 $\int \frac{dx}{\sqrt{x^2 - 36}}$

$$\text{№ 9.11} \int \frac{dx}{5x^2 - 8}$$

$$\text{№ 9.13} \int 9^{3x+7} dx$$

$$\text{№ 9.15} \int 3(2/x - 9x^6) dx$$

$$\text{№ 9.17} \int (13x + 6) \cdot e^x dx$$

$$\text{№ 9.19} \int \log_5 6x dx$$

$$\text{№ 9.12} \int \frac{6x-1}{2x+5} dx$$

$$\text{№ 9.14} \int (5x+12)^7 dx$$

$$\text{№ 9.16} \int \cos^8 x \sin x dx$$

$$\text{№ 9.18} \int x^{10} \ln x dx$$

$$\text{№ 9.20} \int 14^x \cos x dx$$

Wariant №5.

$$\text{№ 9.1} \int 6x^{10} dx$$

$$\text{№ 9.3} \int 8/x^5 dx$$

$$\text{№ 9.5} \int (5x+14) dx$$

$$\text{№ 9.7} \int (5e^x + 7 \sin x) dx$$

$$\text{№ 9.9} \int \frac{dx}{x^2 - 16}$$

$$\text{№ 9.11} \int \frac{dx}{10x^2 + 17}$$

$$\text{№ 9.13} \int 7^{2x-5} dx$$

$$\text{№ 9.15} \int 5(\cos 2x - x^5) dx$$

$$\text{№ 9.17} \int (14x - 5) \cdot e^x dx$$

$$\text{№ 9.19} \int \log_6 7x dx$$

$$\text{№ 9.2} \int ax^{7,5} dx$$

$$\text{№ 9.4} \int \sqrt[9]{x^8} dx$$

$$\text{№ 9.6} \int (5x^2 - 7x + 15) dx$$

$$\text{№ 9.8} \int (4x + 9x^3 - 3^x) dx$$

$$\text{№ 9.10} \int \frac{dx}{\sqrt{x^2 + 25}}$$

$$\text{№ 9.12} \int \frac{7x+8}{x+1} dx$$

$$\text{№ 9.14} \int (2x-7)^9 dx$$

$$\text{№ 9.16} \int \sin^9 x \cos x dx$$

$$\text{№ 9.18} \int x^{11} \ln x dx$$

$$\text{№ 9.20} \int 15^x \sin x dx$$

Wariant №6.

№ 9.1 $\int 9x^6 dx$

№ 9.2 $\int ax^{4,5} dx$

№ 9.3 $\int 3/x^9 dx$

№ 9.4 $\int \sqrt[8]{x^3} dx$

№ 9.5 $\int (4x-7)dx$

№ 9.6 $\int (6x^2 - 2x + 3)dx$

№ 9.7 $\int (3x^8 + 4\sin x)dx$

№ 9.8 $\int (12x - 3x^5 + 5^x)dx$

№ 9.9 $\int \frac{dx}{x^2 + 16}$

№ 9.10 $\int \frac{dx}{\sqrt{x^2 - 25}}$

№ 9.11 $\int \frac{dx}{10x^2 - 17}$

№ 9.12 $\int \frac{x+5}{x-1} dx$

№ 9.13 $\int 3^{4x+9} dx$

№ 9.14 $\int (9x-2)^7 dx$

№ 9.15 $\int 16(7\cos 5x - 3e^x)dx$

№ 9.16 $\int \cos^{10} x \sin x dx$

№ 9.17 $\int (7x+4) \cdot e^x dx$

№ 9.18 $\int x^{12} \ln x dx$

№ 9.19 $\int \log_7 8x dx$

№ 9.20 $\int 15^x \cos x dx$

Wariant №7.

№ 9.1 $\int 7x^8 dx$

№ 9.2 $\int ax^{6,5} dx$

№ 9.3 $\int 9/x^{13} dx$

№ 9.4 $\int \sqrt[7]{x^9} dx$

№ 9.5 $\int (3x+16)dx$

№ 9.6 $\int (3x^2 - 7x + 8)dx$

№ 9.7 $\int (7e^x + 5\sin x)dx$

№ 9.8 $\int (13x + 5x^9 + 9^x)dx$

№ 9.9 $\int \frac{dx}{x^2 - 25}$

№ 9.10 $\int \frac{dx}{\sqrt{x^2 + 16}}$

№ 9.11 $\int \frac{dx}{4x^2 + 5}$

№ 9.12 $\int \frac{6x+1}{3x-2} dx$

$$\text{№ 9.13 } \int 4^{8x-5} dx$$

$$\text{№ 9.14 } \int (16x+3)^{12} dx$$

$$\text{№ 9.15 } \int 15(2x^3 - \cos 7x) dx \quad \text{№ 9.16 } \int \sin^{11} x \cos x dx$$

$$\text{№ 9.17 } \int (16x-3) \cdot e^x dx \quad \text{№ 9.18 } \int x^{13} \ln x dx$$

$$\text{№ 9.19 } \int \log_8 9x dx \quad \text{№ 9.20 } \int 14^x \sin x dx$$

Вариант №8.

$$\text{№ 9.1 } \int 13x^4 dx$$

$$\text{№ 9.2 } \int ax^{4,7} dx$$

$$\text{№ 9.3 } \int 4/x^8 dx$$

$$\text{№ 9.4 } \int \sqrt[4]{x^7} dx$$

$$\text{№ 9.5 } \int (2x-17) dx$$

$$\text{№ 9.6 } \int (7x^2 + 4x - 10) dx$$

$$\text{№ 9.7 } \int (13 \cos x - 5 \sin x) dx \quad \text{№ 9.8 } \int (3x - 4x^8 + 8^x) dx$$

$$\text{№ 9.9 } \int \frac{dx}{x^2 + 25} \quad \text{№ 9.10 } \int \frac{dx}{\sqrt{x^2 - 16}}$$

$$\text{№ 9.11 } \int \frac{dx}{4x^2 - 5} \quad \text{№ 9.12 } \int \frac{6x-5}{3x+2} dx$$

$$\text{№ 9.13 } \int 5^{7x+1} dx \quad \text{№ 9.14 } \int (4x-3)^6 dx$$

$$\text{№ 9.15 } \int (5 \cos 6x - 3x^4) dx \quad \text{№ 9.16 } \int \cos^{12} x \sin x dx$$

$$\text{№ 9.17 } \int (17x-2) \cdot e^x dx \quad \text{№ 9.18 } \int x^{14} \ln x dx$$

$$\text{№ 9.19 } \int \log_2 4x dx \quad \text{№ 9.20 } \int 13^x \cos x dx$$

Вариант №9.

$$\text{№ 9.1 } \int 6x^3 dx$$

$$\text{№ 9.2 } \int ax^{2,3} dx$$

$$\text{№ 9.3 } \int 9/x^{12} dx$$

$$\text{№ 9.4 } \int \sqrt[6]{x^{11}} dx$$

$$\text{№ 9.5 } \int (10x+17) dx$$

$$\text{№ 9.6 } \int (15x^2 + 5x - 13) dx$$

№ 9.7 $\int (3 \cos x - 5 \sin x) dx$	№ 9.8 $\int (7x - 3x^2 + 2^x) dx$
№ 9.9 $\int \frac{dx}{x^2 - 36}$	№ 9.10 $\int \frac{dx}{\sqrt{x^2 + 9}}$
№ 9.11 $\int \frac{dx}{2x^2 + 13}$	№ 9.12 $\int \frac{8x - 3}{4x + 2} dx$
№ 9.13 $\int 7^{3x-4} dx$	№ 9.14 $\int (9x - 2)^5 dx$
№ 9.15 $\int 7(6x^3 + 5 \sin 2x) dx$	№ 9.16 $\int \sin^{13} x \cos x dx$
№ 9.17 $\int (17x - 10) \cdot e^x dx$	№ 9.18 $\int x^{15} \ln x dx$
№ 9.19 $\int \log_3 5x dx$	№ 9.20 $\int 12^x \sin x dx$

Вариант №10.

№ 9.1 $\int 7x^{11} dx$	№ 9.2 $\int ax^{6,1} dx$
№ 9.3 $\int 2/x^{10} dx$	№ 9.4 $\int \sqrt[5]{x^6} dx$
№ 9.5 $\int (11x - 7) dx$	№ 9.6 $\int (17x^2 + 3x - 7) dx$
№ 9.7 $\int (2 \cos x - 7e^x) dx$	№ 9.8 $\int (6x - 5x^{12} + 12^x) dx$
№ 9.9 $\int \frac{dx}{x^2 + 36}$	№ 9.10 $\int \frac{dx}{\sqrt{x^2 - 9}}$
№ 9.11 $\int \frac{dx}{2x^2 - 13}$	№ 9.12 $\int \frac{10x + 1}{5x - 7} dx$
№ 9.13 $\int 5^{6x+11} dx$	№ 9.14 $\int (6x - 5)^9 dx$
№ 9.15 $\int 5(9 \cos 3x + 2x^7) dx$	№ 9.16 $\int \cos^{14} x \sin x dx$

$$\text{№ 9.17} \int (7x + 11) \cdot e^x dx$$

$$\text{№ 9.18} \int x^{16} \ln x dx$$

$$\text{№ 9.19} \int \log_4 6x dx$$

$$\text{№ 9.20} \int 11^x \cos x dx$$

Вариант №11.

$$\text{№ 9.1} \int 5x^{13} dx$$

$$\text{№ 9.2} \int ax^{5,6} dx$$

$$\text{№ 9.3} \int 3/x^2 dx$$

$$\text{№ 9.4} \int \sqrt[9]{x^{11}} dx$$

$$\text{№ 9.5} \int (19x + 3) dx$$

$$\text{№ 9.6} \int (17x^2 + 9x - 7) dx$$

$$\text{№ 9.7} \int (9 \sin x - 4e^x) dx$$

$$\text{№ 9.8} \int (2x + 7x^{12} - 12^x) dx$$

$$\text{№ 9.9} \int \frac{dx}{x^2 - 49}$$

$$\text{№ 9.10} \int \frac{dx}{\sqrt{x^2 + 4}}$$

$$\text{№ 9.11} \int \frac{dx}{5x^2 + 11}$$

$$\text{№ 9.12} \int \frac{x+5}{x-3} dx$$

$$\text{№ 9.13} \int 8^{3x-7} dx$$

$$\text{№ 9.14} \int (7x+1)^6 dx$$

$$\text{№ 9.15} \int 9(\cos 3x + 2x^7) dx$$

$$\text{№ 9.16} \int \sin^{15} x \cos x dx$$

$$\text{№ 9.17} \int (3x + 19) \cdot e^x dx$$

$$\text{№ 9.18} \int x^3 \ln x dx$$

$$\text{№ 9.19} \int \log_5 7x dx$$

$$\text{№ 9.20} \int 16^x \sin x dx$$

Вариант №12.

$$\text{№ 9.1} \int 4x^9 dx$$

$$\text{№ 9.2} \int ax^{3,5} dx$$

$$\text{№ 9.3} \int 5/x^{11} dx$$

$$\text{№ 9.4} \int \sqrt[8]{x^5} dx$$

$$\text{№ 9.5} \int (18x - 7) dx$$

$$\text{№ 9.6} \int (19x^2 + 7x - 1) dx$$

$$\text{№ 9.7} \int (12 \sin x - 7x^9) dx$$

$$\text{№ 9.8} \int (7x - 5x^{11} + 11^x) dx$$

$$\text{№ 9.9} \quad \int \frac{dx}{x^2 + 49}$$

$$\text{№ 9.10} \quad \int \frac{dx}{\sqrt{x^2 - 4}}$$

$$\text{№ 9.11} \quad \int \frac{dx}{5x^2 - 11}$$

$$\text{№ 9.12} \quad \int \frac{7x+1}{x+3} dx$$

$$\text{№ 9.13} \quad \int 7^{2x+13} dx$$

$$\text{№ 9.14} \quad \int (3x-1)^8 dx$$

$$\text{№ 9.15} \quad \int 2(5e^x + 6\cos 5x) dx$$

$$\text{№ 9.16} \quad \int \cos^{16} x \sin x dx$$

$$\text{№ 9.17} \quad \int (7x-18) \cdot e^x dx$$

$$\text{№ 9.18} \quad \int x^{17} \ln x dx$$

$$\text{№ 9.19} \quad \int \log_6 8x dx$$

$$\text{№ 9.20} \quad \int 10^x \cos x dx$$

Вариант №13.

$$\text{№ 9.1} \quad \int 20x^{15} dx$$

$$\text{№ 9.2} \quad \int ax^{9,6} dx$$

$$\text{№ 9.3} \quad \int 20/x^{15} dx$$

$$\text{№ 9.4} \quad \int \sqrt[3]{x^7} dx$$

$$\text{№ 9.5} \quad \int (17x+8) dx$$

$$\text{№ 9.6} \quad \int (32x^2 + 10x - 9) dx$$

$$\text{№ 9.7} \quad \int (e^x + \sin x) dx$$

$$\text{№ 9.8} \quad \int (16x - 3x^{20} + 20^x) dx$$

$$\text{№ 9.9} \quad \int \frac{dx}{x^2 - 64}$$

$$\text{№ 9.10} \quad \int \frac{dx}{\sqrt{x^2 + 100}}$$

$$\text{№ 9.11} \quad \int \frac{dx}{10x^2 + 21}$$

$$\text{№ 9.12} \quad \int \frac{9x+4}{x+6} dx$$

$$\text{№ 9.13} \quad \int 3^{6x+17} dx$$

$$\text{№ 9.14} \quad \int (4x+15)^{12} dx$$

$$\text{№ 9.15} \quad \int 8(6\sin x + 13e^x) dx$$

$$\text{№ 9.16} \quad \int \sin^{17} x \cos x dx$$

$$\text{№ 9.17} \quad \int (17x-1) \cdot e^x dx$$

$$\text{№ 9.18} \quad \int x^{18} \ln x dx$$

$$\text{№ 9.19} \quad \int \log_7 9x dx$$

$$\text{№ 9.20} \quad \int 9^x \sin x dx$$

Wariant №14.

$$\text{№ 9.1} \quad \int 2x^{32} dx$$

$$\text{№ 9.2} \quad \int ax^{12,5} dx$$

$$\text{№ 9.3} \quad \int 4/x^{32} dx$$

$$\text{№ 9.4} \quad \int \sqrt[4]{x^{25}} dx$$

$$\text{№ 9.5} \quad \int (16x - 3) dx$$

$$\text{№ 9.6} \quad \int (25x^2 - 4x + 6) dx$$

$$\text{№ 9.7} \quad \int (e^x + \sin x) dx$$

$$\text{№ 9.8} \quad \int (32x - 9x^3 + 3^x) dx$$

$$\text{№ 9.9} \quad \int \frac{dx}{x^2 + 64}$$

$$\text{№ 9.10} \quad \int \frac{dx}{\sqrt{x^2 - 100}}$$

$$\text{№ 9.11} \quad \int \frac{dx}{10x^2 - 21}$$

$$\text{№ 9.12} \quad \int \frac{6x - 1}{x + 2} dx$$

$$\text{№ 9.13} \quad \int 4^{4x-4} dx$$

$$\text{№ 9.14} \quad \int (8x - 9)^{16} dx$$

$$\text{№ 9.15} \quad \int 21(2\cos 13x - 6x^{13}) dx$$

$$\text{№ 9.16} \quad \int \cos^{18} x \sin x dx$$

$$\text{№ 9.17} \quad \int (16x + 5) \cdot e^x dx$$

$$\text{№ 9.18} \quad \int x^{19} \ln x dx$$

$$\text{№ 9.19} \quad \int \log_2 5x dx$$

$$\text{№ 9.20} \quad \int 8^x \cos x dx$$

Wariant №15.

$$\text{№ 9.1} \quad \int 32x^7 dx$$

$$\text{№ 9.2} \quad \int ax^{6,1} dx$$

$$\text{№ 9.3} \quad \int 7/x^{32} dx$$

$$\text{№ 9.4} \quad \int \sqrt[10]{x^{13}} dx$$

$$\text{№ 9.5} \quad \int (15x + 4) dx$$

$$\text{№ 9.6} \quad \int (16x^2 - 9x + 1) dx$$

$$\text{№ 9.7} \quad \int (e^x + \sin x) dx$$

$$\text{№ 9.8} \quad \int (15x - 4x^{23} - 23^x) dx$$

$$\text{№ 9.9} \quad \int \frac{dx}{x^2 - 81}$$

$$\text{№ 9.10} \quad \int \frac{dx}{\sqrt{x^2 + 121}}$$

$$\text{№ 9.11} \quad \int \frac{dx}{4x^2 + 15}$$

$$\text{№ 9.12} \quad \int \frac{4x+7}{x+5} dx$$

$$\text{№ 9.13} \quad \int 6^{4x+13} dx$$

$$\text{№ 9.14} \quad \int (3x+19)^{12} dx$$

$$\text{№ 9.15} \quad \int 13(3\sin 2x - 4x^9) dx$$

$$\text{№ 9.16} \quad \int \sin^{19} x \cos x dx$$

$$\text{№ 9.17} \quad \int (7x-2) \cdot e^x dx$$

$$\text{№ 9.18} \quad \int x^{20} \ln x dx$$

$$\text{№ 9.19} \quad \int \log_3 6x dx$$

$$\text{№ 9.20} \quad \int 7^x \sin x dx$$

Wariant №16.

$$\text{№ 9.1} \quad \int 9x^{21} dx$$

$$\text{№ 9.2} \quad \int ax^{5,4} dx$$

$$\text{№ 9.3} \quad \int 9/x^{21} dx$$

$$\text{№ 9.4} \quad \int \sqrt[8]{x^{21}} dx$$

$$\text{№ 9.5} \quad \int (14x-9) dx$$

$$\text{№ 9.6} \quad \int (2x^2 - 6x + 13) dx$$

$$\text{№ 9.7} \quad \int (e^x + \sin x) dx$$

$$\text{№ 9.8} \quad \int (21x - 7x^{21} + 21^x) dx$$

$$\text{№ 9.9} \quad \int \frac{dx}{x^2 + 81}$$

$$\text{№ 9.10} \quad \int \frac{dx}{\sqrt{x^2 - 121}}$$

$$\text{№ 9.11} \quad \int \frac{dx}{4x^2 - 15}$$

$$\text{№ 9.12} \quad \int \frac{6x}{2x-3} dx$$

$$\text{№ 9.13} \quad \int 5^{3x+7} dx$$

$$\text{№ 9.14} \quad \int (21x-17)^5 dx$$

$$\text{№ 9.15} \quad \int 8(4\cos 7x - 5e^x) dx$$

$$\text{№ 9.16} \quad \int \cos^{20} x \sin x dx$$

$$\text{№ 9.17} \quad \int (14x+3) \cdot e^x dx$$

$$\text{№ 9.18} \quad \int x^{21} \ln x dx$$

$$\text{№ 9.19} \quad \int \log_4 7x dx$$

$$\text{№ 9.20} \quad \int 7^x \cos x dx$$

Wariant №17.

№ 9.1 $\int 6x^{24} dx$

№ 9.2 $\int ax^{3,2} dx$

№ 9.3 $\int 6/x^{24} dx$

№ 9.4 $\int \sqrt[3]{x^{14}} dx$

№ 9.5 $\int (13x+6)dx$

№ 9.6 $\int (5x^2+13x-6)dx$

№ 9.7 $\int (12e^x - 5\sin x)dx$

№ 9.8 $\int (24x-3x^{24}+24^x)dx$

№ 9.9 $\int \frac{dx}{x^2-100}$

№ 9.10 $\int \frac{dx}{\sqrt{x^2+81}}$

№ 9.11 $\int \frac{dx}{2x^2+9}$

№ 9.12 $\int \frac{10x+3}{5x-1} dx$

№ 9.13 $\int 7^{6x-5} dx$

№ 9.14 $\int (24x-17)^6 dx$

№ 9.15 $\int 9(5x^2+8\sin 3x)dx$

№ 9.16 $\int \sin^{21} x \cos x dx$

№ 9.17 $\int (13x-3) \cdot e^x dx$

№ 9.18 $\int x^{22} \ln x dx$

№ 9.19 $\int \log_5 8x dx$

№ 9.20 $\int 8^x \sin x dx$

Wariant №18.

№ 9.1 $\int 4x^{27} dx$

№ 9.2 $\int ax^{5,3} dx$

№ 9.3 $\int 5/x^{27} dx$

№ 9.4 $\int \sqrt[8]{x^{27}} dx$

№ 9.5 $\int (12x-1)dx$

№ 9.6 $\int (9x^2+4x-11)dx$

№ 9.7 $\int (2\sin x - 5x^{13})dx$

№ 9.8 $\int (27x-5x^{27}+27^x)dx$

№ 9.9 $\int \frac{dx}{x^2+100}$

№ 9.10 $\int \frac{dx}{\sqrt{x^2-81}}$

$$\text{№ 9.11} \int \frac{dx}{2x^2 - 9}$$

$$\text{№ 9.12} \int \frac{x+6}{x+11} dx$$

$$\text{№ 9.13} \int 7^{5x+8} dx$$

$$\text{№ 9.14} \int (27x-8)^{10} dx$$

$$\text{№ 9.15} \int 3(4e^{2x} - 5\cos 6x) dx$$

$$\text{№ 9.16} \int \cos^2 x \sin x dx$$

$$\text{№ 9.17} \int (12x+11) \cdot e^x dx$$

$$\text{№ 9.18} \int x^4 \ln x dx$$

$$\text{№ 9.19} \int \log_6 9x dx$$

$$\text{№ 9.20} \int 9^x \cos x dx$$

Вариант №19.

$$\text{№ 9.1} \int 6x^{16} dx$$

$$\text{№ 9.2} \int ax^{6,7} dx$$

$$\text{№ 9.3} \int 13/x^6 dx$$

$$\text{№ 9.4} \int \sqrt[7]{x^{16}} dx$$

$$\text{№ 9.5} \int (20x+7) dx$$

$$\text{№ 9.6} \int (5x^2 + 7x - 17) dx$$

$$\text{№ 9.7} \int (3e^x - 7\cos x) dx$$

$$\text{№ 9.8} \int (16x + 3x^{16} + 16^x) dx$$

$$\text{№ 9.9} \int \frac{dx}{x^2 - 121}$$

$$\text{№ 9.10} \int \frac{dx}{\sqrt{x^2 + 64}}$$

$$\text{№ 9.11} \int \frac{dx}{5x^2 + 19}$$

$$\text{№ 9.12} \int \frac{4x+3}{2x-7} dx$$

$$\text{№ 9.13} \int 6^{7x+15} dx$$

$$\text{№ 9.14} \int (16x-7)^{13} dx$$

$$\text{№ 9.15} \int 3(\cos 2x + 5x^7) dx$$

$$\text{№ 9.16} \int \sin^3 x \cos x dx$$

$$\text{№ 9.17} \int (20x-9) \cdot e^x dx$$

$$\text{№ 9.18} \int x^5 \ln x dx$$

$$\text{№ 9.19} \int \log_7 6x dx$$

$$\text{№ 9.20} \int 10^x \sin x dx$$

Wariant №20.

№ 9.1 $\int 9x^{17} dx$

№ 9.2 $\int ax^{8,3} dx$

№ 9.3 $\int 11/x^{17} dx$

№ 9.4 $\int \sqrt[4]{x^{17}} dx$

№ 9.5 $\int (4x-17)dx$

№ 9.6 $\int (6x^2 - 5x + 8)dx$

№ 9.7 $\int (e^x + \sin x)dx$

№ 9.8 $\int (2x - x^{17} + 17^x)dx$

№ 9.9 $\int \frac{dx}{x^2 + 121}$

№ 9.10 $\int \frac{dx}{\sqrt{x^2 - 64}}$

№ 9.11 $\int \frac{dx}{5x^2 - 19}$

№ 9.12 $\int \frac{8x+3}{4x-3} dx$

№ 9.13 $\int 7^{9x+5} dx$

№ 9.14 $\int (7x+2)^7 dx$

№ 9.15 $\int 7(3x^{13} - 2\sin 6x) dx$

№ 9.16 $\int \cos^4 x \sin x dx$

№ 9.17 $\int (4x+19) \cdot e^x dx$

№ 9.18 $\int x^6 \ln x dx$

№ 9.19 $\int \log_8 7x dx$

№ 9.20 $\int 16^x \cos x dx$

Wariant №21.

№ 9.1 $\int 7x^{18} dx$

№ 9.2 $\int ax^{3,9} dx$

№ 9.3 $\int 8/x^{18} dx$

№ 9.4 $\int \sqrt[7]{x^{18}} dx$

№ 9.5 $\int (25x+8)dx$

№ 9.6 $\int (5x^2 - 6x + 10)dx$

№ 9.7 $\int (5\sin x + 11\cos x)dx$

№ 9.8 $\int (18x - 3x^{18} + 18^x)dx$

$$\text{№ 9.9} \quad \int \frac{dx}{x^2 - 8}$$

$$\text{№ 9.10} \quad \int \frac{dx}{\sqrt{4 - x^2}}$$

$$\text{№ 9.11} \quad \int \frac{dx}{4x^2 + 7}$$

$$\text{№ 9.12} \quad \int \frac{5x + 3}{x + 4} dx$$

$$\text{№ 9.13} \quad \int 3^{5x-12} dx$$

$$\text{№ 9.14} \quad \int (18x + 3)^7 dx$$

$$\text{№ 9.15} \quad \int 7(6\sin 3x + 5x^3) dx \quad \text{№ 9.16} \quad \int \sin^{12} x \cos x dx$$

$$\text{№ 9.17} \quad \int (6x + 2) \cdot e^x dx \quad \text{№ 9.18} \quad \int x^{28} \ln x dx$$

$$\text{№ 9.19} \quad \int \log_7 2x dx \quad \text{№ 9.20} \quad \int 2^x \sin x dx$$

Вариант №22.

$$\text{№ 9.1} \quad \int 2x^{19} dx$$

$$\text{№ 9.2} \quad \int ax^{7,2} dx$$

$$\text{№ 9.3} \quad \int 3/x^{19} dx$$

$$\text{№ 9.4} \quad \int \sqrt[5]{x^{19}} dx$$

$$\text{№ 9.5} \quad \int (25x - 8) dx$$

$$\text{№ 9.6} \quad \int (6x^2 - 8x + 11) dx$$

$$\text{№ 9.7} \quad \int (7e^x + 8\cos x) dx \quad \text{№ 9.8} \quad \int (19x - 3x^{19} + 19^x) dx$$

$$\text{№ 9.9} \quad \int \frac{dx}{x^2 + 5}$$

$$\text{№ 9.10} \quad \int \frac{dx}{\sqrt{9 - x^2}}$$

$$\text{№ 9.11} \quad \int \frac{dx}{10x^2 - 21}$$

$$\text{№ 9.12} \quad \int \frac{4x - 1}{4x + 5} dx$$

$$\text{№ 9.13} \quad \int 10^{6x+1} dx$$

$$\text{№ 9.14} \quad \int (19x + 3)^8 dx$$

$$\text{№ 9.15} \quad \int 8(\cos 5x - 3x^{12}) dx \quad \text{№ 9.16} \quad \int \cos^{11} x \sin x dx$$

$$\text{№ 9.17} \quad \int (2x - 3) \cdot e^x dx \quad \text{№ 9.18} \quad \int x^{25} \ln x dx$$

$$\text{№ 9.19} \quad \int \log_5 9x dx \quad \text{№ 9.20} \quad \int 3^x \cos x dx$$

Wariant №23.

$$\text{№ 9.1} \quad \int 7x^{20} dx$$

$$\text{№ 9.2} \quad \int ax^{5,7} dx$$

$$\text{№ 9.3} \quad \int 6/x^{20} dx$$

$$\text{№ 9.4} \quad \int \sqrt[9]{x^{20}} dx$$

$$\text{№ 9.5} \quad \int (21x+6)dx$$

$$\text{№ 9.6} \quad \int (3x^2 - 11x + 7)dx$$

$$\text{№ 9.7} \quad \int (6e^x - 15 \sin x)dx$$

$$\text{№ 9.8} \quad \int (20x + 5x^{20} + 20^x)dx$$

$$\text{№ 9.9} \quad \int \frac{dx}{x^2 - 2}$$

$$\text{№ 9.10} \quad \int \frac{dx}{\sqrt{16 - x^2}}$$

$$\text{№ 9.11} \quad \int \frac{dx}{10x^2 + 23}$$

$$\text{№ 9.12} \quad \int \frac{6x+1}{3x-2} dx$$

$$\text{№ 9.13} \quad \int 8^{5x-6} dx$$

$$\text{№ 9.14} \quad \int (20x-3)^6 dx$$

$$\text{№ 9.15} \quad \int 4(3 \sin 2x + 5x^8) dx$$

$$\text{№ 9.16} \quad \int \sin^{10} x \cos x dx$$

$$\text{№ 9.17} \quad \int (9x+2) \cdot e^x dx$$

$$\text{№ 9.18} \quad \int x^{30} \ln x dx$$

$$\text{№ 9.19} \quad \int \log_7 4x dx$$

$$\text{№ 9.20} \quad \int 4^x \sin x dx$$

Wariant №24.

$$\text{№ 9.1} \quad \int 5x^{22} dx$$

$$\text{№ 9.2} \quad \int ax^{5,6} dx$$

$$\text{№ 9.3} \quad \int 7/x^{22} dx$$

$$\text{№ 9.4} \quad \int \sqrt[7]{x^{22}} dx$$

$$\text{№ 9.5} \quad \int (27x-13)dx$$

$$\text{№ 9.6} \quad \int (5x^2 - 18x + 13)dx$$

$$\text{№ 9.7} \quad \int (6 \cos x + 5e^x) dx$$

$$\text{№ 9.8} \quad \int (22x + 5x^{22} + 22^x) dx$$

$$\text{№ 9.9} \quad \int \frac{dx}{x^2 + 7}$$

$$\text{№ 9.10} \quad \int \frac{dx}{\sqrt{25 - x^2}}$$

$$\text{№ 9.11} \quad \int \frac{dx}{4x^2 - 9}$$

$$\text{№ 9.12} \quad \int \frac{5x+9}{x-3} dx$$

$$\text{№ 9.13} \quad \int 3^{6x-7} dx$$

$$\text{№ 9.14} \quad \int (22x+1)^{11} dx$$

$$\text{№ 9.15} \quad \int (5x^4 - 3\cos 8x) dx$$

$$\text{№ 9.16} \quad \int \cos^9 x \sin x dx$$

$$\text{№ 9.17} \quad \int (7x-8) \cdot e^x dx$$

$$\text{№ 9.18} \quad \int x^{27} \ln x dx$$

$$\text{№ 9.19} \quad \int \log_4 7x dx$$

$$\text{№ 9.20} \quad \int 5^x \cos x dx$$

Вариант №25.

$$\text{№ 9.1} \quad \int 9x^{23} dx$$

$$\text{№ 9.2} \quad \int ax^{7,4} dx$$

$$\text{№ 9.3} \quad \int 9/x^{23} dx$$

$$\text{№ 9.4} \quad \int \sqrt[4]{x^{23}} dx$$

$$\text{№ 9.5} \quad \int (30x+11) dx$$

$$\text{№ 9.6} \quad \int (3x^2 + 11x - 9) dx$$

$$\text{№ 9.7} \quad \int (17 \cos x + 4 \sin x) dx$$

$$\text{№ 9.8} \quad \int (23x - 4x^{23} + 23^x) dx$$

$$\text{№ 9.9} \quad \int \frac{dx}{x^2 - 5}$$

$$\text{№ 9.10} \quad \int \frac{dx}{\sqrt{36 - x^2}}$$

$$\text{№ 9.11} \quad \int \frac{dx}{4x^2 + 9}$$

$$\text{№ 9.12} \quad \int \frac{6x+1}{2x+5} dx$$

$$\text{№ 9.13} \quad \int 3^{5x+7} dx$$

$$\text{№ 9.14} \quad \int (23x-9)^{14} dx$$

$$\text{№ 9.15} \quad \int 6(2x^8 + 3 \sin 14x) dx$$

$$\text{№ 9.16} \quad \int \sin^8 x \cos x dx$$

$$\text{№ 9.17} \quad \int (3x+7) \cdot e^x dx$$

$$\text{№ 9.18} \quad \int x^{32} \ln x dx$$

$$\text{№ 9.19} \quad \int \log_9 8x dx$$

$$\text{№ 9.20} \quad \int 6^x \sin x dx$$

Wariant №26.

$$\text{№ 9.1} \quad \int 2x^{25} dx$$

$$\text{№ 9.2} \quad \int ax^{1,6} dx$$

$$\text{№ 9.3} \quad \int 2/x^{25} dx$$

$$\text{№ 9.4} \quad \int \sqrt[3]{x^{25}} dx$$

$$\text{№ 9.5} \quad \int (22x - 7) dx$$

$$\text{№ 9.6} \quad \int (2x^2 + 9x - 11) dx$$

$$\text{№ 9.7} \quad \int (4\cos x - 11e^x) dx$$

$$\text{№ 9.8} \quad \int (25x - 2x^{25} + 25^x) dx$$

$$\text{№ 9.9} \quad \int \frac{dx}{x^2 + 2}$$

$$\text{№ 9.10} \quad \int \frac{dx}{\sqrt{49 - x^2}}$$

$$\text{№ 9.11} \quad \int \frac{dx}{2x^2 - 7}$$

$$\text{№ 9.12} \quad \int \frac{6x + 5}{3x - 1} dx$$

$$\text{№ 9.13} \quad \int 2^{8x-1} dx$$

$$\text{№ 9.14} \quad \int (25x + 7)^5 dx$$

$$\text{№ 9.15} \quad \int 4(\cos 17x + 2x^9) dx$$

$$\text{№ 9.16} \quad \int \cos^7 x \sin x dx$$

$$\text{№ 9.17} \quad \int (8x - 11) \cdot e^x dx$$

$$\text{№ 9.18} \quad \int x^{23} \ln x dx$$

$$\text{№ 9.19} \quad \int \log_5 2x dx$$

$$\text{№ 9.20} \quad \int 6^x \cos x dx$$

Wariant №27.

$$\text{№ 9.1} \quad \int 5x^{26} dx$$

$$\text{№ 9.2} \quad \int ax^{9,5} dx$$

$$\text{№ 9.3} \quad \int 5/x^{26} dx$$

$$\text{№ 9.4} \quad \int \sqrt[9]{x^{26}} dx$$

$$\text{№ 9.5} \quad \int (29x + 3) dx$$

$$\text{№ 9.6} \quad \int (7x^2 + 5x - 19) dx$$

$$\text{№ 9.7} \quad \int (4\sin x + 7e^x) dx$$

$$\text{№ 9.8} \quad \int (26x + 7x^{26} - 26^x) dx$$

$$\text{№ 9.9} \quad \int \frac{dx}{x^2 - 6}$$

$$\text{№ 9.10} \quad \int \frac{dx}{\sqrt{64 - x^2}}$$

$$\text{№ 9.11} \int \frac{dx}{2x^2 + 7}$$

$$\text{№ 9.12} \int \frac{2x+3}{2x-1} dx$$

$$\text{№ 9.13} \int 4^{5x+7} dx$$

$$\text{№ 9.14} \int (26x+9)^8 dx$$

$$\text{№ 9.15} \int 4(3x^8 + 2 \cos 5x) dx \quad \text{№ 9.16} \int \sin^6 x \cos x dx$$

$$\text{№ 9.17} \int (5x+12) \cdot e^x dx$$

$$\text{№ 9.18} \int x^{31} \ln x dx$$

$$\text{№ 9.19} \int \log_3 8x dx$$

$$\text{№ 9.20} \int 5^x \sin x dx$$

Вариант №28.

$$\text{№ 9.1} \int 3x^{28} dx$$

$$\text{№ 9.2} \int ax^{6,9} dx$$

$$\text{№ 9.3} \int 3/x^{28} dx$$

$$\text{№ 9.4} \int \sqrt[3]{x^{28}} dx$$

$$\text{№ 9.5} \int (23x-8) dx$$

$$\text{№ 9.6} \int (3x^2 + 16x - 8) dx$$

$$\text{№ 9.7} \int (7 \sin x + 13x^9) dx$$

$$\text{№ 9.8} \int (28x - 3x^{28} + 28^x) dx$$

$$\text{№ 9.9} \int \frac{dx}{x^2 + 3}$$

$$\text{№ 9.10} \int \frac{dx}{\sqrt{81 - x^2}}$$

$$\text{№ 9.11} \int \frac{dx}{5x^2 - 12}$$

$$\text{№ 9.12} \int \frac{4x+9}{2x+1} dx$$

$$\text{№ 9.13} \int 3^{8x+9} dx$$

$$\text{№ 9.14} \int (28x+7)^{11} dx$$

$$\text{№ 9.15} \int 5(10e^x + 7 \cos 6x) dx \quad \text{№ 9.16} \int \cos^5 x \sin x dx$$

$$\text{№ 9.17} \int (3x-14) \cdot e^x dx$$

$$\text{№ 9.18} \int x^{26} \ln x dx$$

$$\text{№ 9.19} \int \log_8 5x dx$$

$$\text{№ 9.20} \int 4^x \cos x dx$$

Wariant №29.

$$\text{№ 9.1} \quad \int 2x^{29} dx$$

$$\text{№ 9.2} \quad \int ax^{5,1} dx$$

$$\text{№ 9.3} \quad \int 2/x^{29} dx$$

$$\text{№ 9.4} \quad \int \sqrt[4]{x^{29}} dx$$

$$\text{№ 9.5} \quad \int (28x+9)dx$$

$$\text{№ 9.6} \quad \int (5x^2 - 13x + 7)dx$$

$$\text{№ 9.7} \quad \int (3\sin x + 5\cos x)dx$$

$$\text{№ 9.8} \quad \int (29x - 5x^{29} + 29^x)dx$$

$$\text{№ 9.9} \quad \int \frac{dx}{x^2 - 7}$$

$$\text{№ 9.10} \quad \int \frac{dx}{\sqrt{100 - x^2}}$$

$$\text{№ 9.11} \quad \int \frac{dx}{5x^2 + 12}$$

$$\text{№ 9.12} \quad \int \frac{3x-5}{3x+7} dx$$

$$\text{№ 9.13} \quad \int 3^{7x+3} dx$$

$$\text{№ 9.14} \quad \int (5x-13)^{17} dx$$

$$\text{№ 9.15} \quad \int 3(5\cos 11x + 2x^{12})dx$$

$$\text{№ 9.16} \quad \int \sin^4 x \cos x dx$$

$$\text{№ 9.17} \quad \int (4x+9) \cdot e^x dx$$

$$\text{№ 9.18} \quad \int x^{29} \ln x dx$$

$$\text{№ 9.19} \quad \int \log_4 9x dx$$

$$\text{№ 9.20} \quad \int 3^x \sin x dx$$

Wariant №30.

$$\text{№ 9.1} \quad \int 6x^{30} dx$$

$$\text{№ 9.2} \quad \int ax^{1,6} dx$$

$$\text{№ 9.3} \quad \int 6/x^{30} dx$$

$$\text{№ 9.4} \quad \int \sqrt[7]{x^{30}} dx$$

$$\text{№ 9.5} \quad \int (24x-5)dx$$

$$\text{№ 9.6} \quad \int (2x^2 - 11x + 13)dx$$

$$\text{№ 9.7} \quad \int (5e^x + 18\sin x)dx$$

$$\text{№ 9.8} \quad \int (30x - 4x^{30} + 30^x)dx$$

$$\text{№ 9.9} \quad \int \frac{dx}{x^2 + 6}$$

$$\text{№ 9.11} \quad \int \frac{dx}{4x^2 - 7}$$

$$\text{№ 9.13} \quad \int 11^{8x-1} dx$$

$$\text{№ 9.15} \quad \int (\cos x + x) dx$$

$$\text{№ 9.17} \quad \int (7x - 3) \cdot e^x dx$$

$$\text{№ 9.19} \quad \int \log_2 3x dx$$

$$\text{№ 9.10} \quad \int \frac{dx}{\sqrt{121 - x^2}}$$

$$\text{№ 9.12} \quad \int \frac{2x + 8}{x + 3} dx$$

$$\text{№ 9.14} \quad \int (30x - 13)^{16} dx$$

$$\text{№ 9.16} \quad \int \cos^3 x \sin x dx$$

$$\text{№ 9.18} \quad \int x^{24} \ln x dx$$

$$\text{№ 9.20} \quad \int 2^x \cos x dx$$

Özbaşdak iş №10

Kesgitli integral we onuň ulanylyşy

№ 10.1 – № 10.8 kesgitli integrallary hasaplamaly. № 10.9 – № 10.10 mysallarda berlen göni çyzyklar bilen çäklenen üçburçluklaryň meýdanlaryny tapmaly (üçburçluklary gurmaly)

Wariant №1.

$$\text{№10.1} \quad \int_1^2 x^2 dx$$

$$\text{№10.3} \quad \int_3^5 (3x^2 + 12x + 2) dx$$

$$\text{№10.5} \quad \int_{\pi/6}^{\pi/3} (2 \sin x + 13 \cos x) dx$$

$$\text{№10.2} \quad \int_{-6}^6 (3x + 7) dx$$

$$\text{№10.4} \quad \int_{-1}^2 (x - 2x^3 - 4 \cdot 4^x) dx$$

$$\text{№10.6} \quad \int_0^{\pi/2} \sin^7 x \cdot \cos x dx$$

$$\text{№10.7} \quad \int_{-2}^1 (10x+4)^2 dx$$

$$\text{№10.8} \quad \int_1^2 (10x-9) \cdot e^x dx$$

$$\text{№10.9} \quad \text{Ох okay, } y = 3x \quad \text{we} \quad \text{№10.10} \quad y = -x + 7,$$

$$x = 2.$$

$$y = 2x - 2,$$

$$y = x - 1.$$

Вариант №2.

$$\text{№10.1} \quad \int_2^3 x^3 dx$$

$$\text{№10.2} \quad \int_{-5}^5 (4x-5) dx$$

$$\text{№10.3} \quad \int_2^4 (6x^2 - 5x + 4) dx$$

$$\text{№10.4} \quad \int_{-3}^1 (2x + 3x^5 - 5 \cdot 2^x) dx$$

$$\text{№10.5} \quad \int_{\pi/3}^{\pi/2} (3 \sin x - 16 \cos x) dx$$

$$\text{№10.6} \quad \int_0^{\pi/3} \cos^6 x \cdot \sin x dx$$

$$\text{№10.7} \quad \int_{-1}^2 (8x-5)^3 dx$$

$$\text{№10.8} \quad \int_3^5 (9x+10) \cdot e^x dx$$

$$\text{№10.9} \quad \text{Ох okay, } y = 2x + 2 \quad \text{we} \quad \text{№10.10} \quad y = -x + 8,$$

$$x = 1.$$

$$y = x - 2,$$

$$y = 0,5x - 1.$$

Вариант №3.

$$\text{№10.1} \quad \int_3^4 x^4 dx$$

$$\text{№10.2} \quad \int_{-4}^4 (5x+6) dx$$

$$\text{№10.3} \quad \int_1^3 (9x^2 - 6x - 5) dx$$

$$\text{№10.4} \quad \int_{-2}^1 (3x + 4x^2 + 5^x) dx$$

$$\text{№10.5} \quad \int_{\pi/6}^{\pi/2} (4 \sin x + 11 \cos x) dx$$

$$\text{№10.6} \quad \int_0^{\pi/6} \sin^5 x \cdot \cos x dx$$

$$\text{№10.7} \quad \int_{-3}^1 (5x + 4)^4 dx$$

$$\text{№10.8} \quad \int_2^3 (8x - 13) \cdot e^x dx$$

$$\begin{array}{ll} \text{№10.9} & \text{Ох охы, } y = x + 1 \quad \text{we} \quad \text{№10.10} \quad y = -x + 7, \\ & x = 4. \quad \quad \quad y = 2x + 1, \\ & \quad \quad \quad y = 0,5x + 1. \end{array}$$

Вариант №4.

$$\text{№10.1} \quad \int_1^3 x^5 dx$$

$$\text{№10.2} \quad \int_{-3}^3 (6x - 7) dx$$

$$\text{№10.3} \quad \int_3^4 (3x^2 + 7x - 6) dx$$

$$\text{№10.4} \quad \int_{-1}^3 (4x - 5x^4 + 2 \cdot 8^x) dx$$

$$\text{№10.5} \quad \int_0^{\pi/2} (5 \sin x - 9 \cos x) dx$$

$$\text{№10.6} \quad \int_{\pi/6}^{\pi/3} \cos^4 x \cdot \sin x dx$$

$$\text{№10.7} \quad \int_{-2}^3 (4x - 3)^5 dx$$

$$\text{№10.8} \quad \int_1^3 (7x + 12) \cdot e^x dx$$

$$\begin{array}{ll} \text{№10.9} & \text{Ох охы, } y = 3x - 3 \quad \text{we} \quad \text{№10.10} \quad y = -x + 9, \\ & x = 3. \quad \quad \quad y = 2x - 3, \\ & \quad \quad \quad y = x - 1. \end{array}$$

Вариант №5.

$$\text{№10.1} \quad \int_2^4 x^6 dx$$

$$\text{№10.2} \quad \int_{-2}^2 (7x + 4) dx$$

$$\text{№10.3} \quad \int_2^3 (6x^2 + 4x - 7) dx$$

$$\text{№10.4} \quad \int_{-3}^2 (5x + x^6 - 3 \cdot 10^x) dx$$

$$\text{№10.5} \quad \int_0^{\pi/3} (6 \sin x + 17 \cos x) dx$$

$$\text{№10.6} \quad \int_{\pi/3}^{\pi/2} \sin^3 x \cdot \cos x dx$$

$$\text{№10.7} \quad \int_{-1}^3 (2x - 1)^6 dx$$

$$\text{№10.8} \quad \int_3^4 (6x + 13) \cdot e^x dx$$

$$\text{№10.9} \quad O_x \text{ oky, } y = 2x - 2 \quad \text{we} \quad x = 3.$$

$$\text{№10.10} \quad y = -x + 10, \\ y = 2x - 2, \\ y = 0,5x + 1.$$

Wariant №6.

$$\text{№10.1} \quad \int_3^5 x^2 dx$$

$$\text{№10.2} \quad \int_{-1}^1 (8x - 9) dx$$

$$\text{№10.3} \quad \int_1^2 (9x^2 - 3x + 8) dx$$

$$\text{№10.4} \quad \int_{-2}^3 (x - 2x^7 + 4 \cdot 2^x) dx$$

$$\text{№10.5} \quad \int_0^{\pi/6} (7 \sin x - 8 \cos x) dx$$

$$\text{№10.6} \quad \int_{\pi/6}^{\pi/2} \cos^2 x \cdot \sin x dx$$

$$\text{№10.7} \quad \int_{-3}^2 (x + 2)^7 dx$$

$$\text{№10.8} \quad \int_2^4 (5x + 14) \cdot e^x dx$$

$$\text{№10.9} \quad O_x \text{ oky, } y = x - 2 \quad \text{we} \quad x = 6.$$

$$\text{№10.10} \quad y = -x + 8, \\ y = x + 2, \\ y = 0,5x + 2.$$

Wariant №7.

$$\text{№10.1} \quad \int_1^2 x^3 dx$$

$$\text{№10.2} \quad \int_{-6}^6 (4x + 11) dx$$

$$\text{№10.3} \quad \int_3^5 (3x^2 + 11x + 4) dx$$

$$\text{№10.4} \quad \int_{-1}^2 (2x - 3x^3 - 5 \cdot 4^x) dx$$

$$\text{№10.5} \quad \int_{\pi/6}^{\pi/3} (8 \sin x + 7 \cos x) dx$$

$$\text{№10.6} \quad \int_0^{\pi/2} \sin^6 x \cdot \cos x dx$$

$$\text{№10.7} \quad \int_{-2}^1 (8x + 5)^4 dx$$

$$\text{№10.8} \quad \int_1^2 (9x - 8) \cdot e^x dx$$

$$\text{№10.9} \quad \text{Ox oky, } y = 2x + 4 \quad \text{we} \quad \text{№10.10} \quad y = -x + 8,$$

$$x = 1.$$

$$y = 2x - 1,$$

$$y = 0,5x + 0,5.$$

Wariant №8.

$$\text{№10.1} \quad \int_2^3 x^4 dx$$

$$\text{№10.2} \quad \int_{-5}^5 (5x - 9) dx$$

$$\text{№10.3} \quad \int_2^4 (6x^2 - 9x + 5) dx$$

$$\text{№10.4} \quad \int_{-3}^1 (3x + 4x^5 - 2^x) dx$$

$$\text{№10.5} \quad \int_{\pi/3}^{\pi/2} (9 \sin x - 4 \cos x) dx$$

$$\text{№10.6} \quad \int_0^{\pi/3} \cos^5 x \cdot \sin x dx$$

$$\text{№10.7} \quad \int_{-1}^2 (5x - 4)^2 dx$$

$$\text{№10.8} \quad \int_3^5 (8x + 9) \cdot e^x dx$$

$$\begin{array}{ll} \text{№10.9 } O_x \text{ oky, } y = x + 1 & \text{we } \text{№10.10 } y = -x + 10, \\ x = 2. & y = x, \\ & y = 0,5x + 1. \end{array}$$

Wariant №9.

$$\begin{array}{ll} \text{№10.1 } \int_3^4 x^5 dx & \text{№10.2 } \int_{-4}^4 (6x + 5) dx \\ \text{№10.3 } \int_1^3 (9x^2 - 5x - 6) dx & \text{№10.4 } \int_{-2}^1 (4x + 5x^2 + 2 \cdot 5^x) dx \\ \text{№10.5 } \int_{\pi/6}^{\pi/2} (10 \sin x + 3 \cos x) dx & \text{№10.6 } \int_0^{\pi/6} \sin^4 x \cdot \cos x dx \\ \text{№10.7 } \int_{-3}^1 (4x + 3)^3 dx & \text{№10.8 } \int_2^3 (7x - 10) \cdot e^x dx \\ \text{№10.9 } O_x \text{ oky, } y = x - 2 & \text{we } \text{№10.10 } y = -x + 7, \\ x = 5. & y = x - 1, \\ & y = 0,5x - 0,5. \end{array}$$

Wariant №10.

$$\begin{array}{ll} \text{№10.1 } \int_1^3 x^6 dx & \text{№10.2 } \int_{-3}^3 (7x - 10) dx \\ \text{№10.3 } \int_3^4 (3x^2 + 10x - 7) dx & \text{№10.4 } \int_{-1}^3 (5x - x^4 + 3 \cdot 8^x) dx \end{array}$$

$$\text{№10.5} \quad \int_0^{\pi/2} (11 \sin x - 4 \cos x) dx$$

$$\text{№10.6} \quad \int_{\pi/6}^{\pi/3} \cos^3 x \cdot \sin x dx$$

$$\text{№10.7} \quad \int_{-2}^3 (2x - 3)^4 dx$$

$$\text{№10.8} \quad \int_1^3 (6x + 11) \cdot e^x dx$$

$$\text{№10.9} \quad \text{Ox oky, } y = -x + 1 \quad \text{we} \quad x = -4.$$

$$\text{№10.10} \quad y = -x + 8, \\ y = 2x - 4, \\ y = x - 2.$$

Wariant №11.

$$\text{№10.1} \quad \int_2^4 x^2 dx$$

$$\text{№10.2} \quad \int_{-2}^2 (8x + 7) dx$$

$$\text{№10.3} \quad \int_2^3 (6x^2 + 7x - 8) dx$$

$$\text{№10.4} \quad \int_{-3}^2 (x + 2x^6 - 4 \cdot 10^x) dx$$

$$\text{№10.5} \quad \int_0^{\pi/3} (12 \sin x + 7 \cos x) dx$$

$$\text{№10.6} \quad \int_{\pi/3}^{\pi/2} \sin^2 x \cdot \cos x dx$$

$$\text{№10.7} \quad \int_{-1}^3 (x - 2)^5 dx$$

$$\text{№10.8} \quad \int_3^4 (5x + 12) \cdot e^x dx$$

$$\text{№10.9} \quad \text{Ox oky, } y = x + 3 \quad \text{we} \quad x = 2.$$

$$\text{№10.10} \quad y = -x + 7, \\ y = x + 1, \\ y = 0,5x + 1.$$

Вариант №12.

$$\text{№10.1} \quad \int_3^5 x^3 dx$$

$$\text{№10.2} \quad \int_{-1}^1 (9x - 2) dx$$

$$\text{№10.3} \quad \int_1^2 (9x^2 - 2x + 7) dx$$

$$\text{№10.4} \quad \int_{-2}^3 (2x - 3x^7 + 5 \cdot 2^x) dx$$

$$\text{№10.5} \quad \int_0^{\pi/6} (13 \sin x - 2 \cos x) dx$$

$$\text{№10.6} \quad \int_{\pi/6}^{\pi/2} \cos^7 x \cdot \sin x dx$$

$$\text{№10.7} \quad \int_{-3}^2 (10x + 6)^3 dx$$

$$\text{№10.8} \quad \int_2^4 (4x + 13) \cdot e^x dx$$

$$\text{№10.9} \quad \text{Ох окы, } y = -x + 3 \quad \text{we} \quad \text{№10.10} \quad y = -x + 8,$$

$$y = 2x + 2,$$

$$y = 0,5x + 2.$$

Вариант №13.

$$\text{№10.1} \quad \int_1^2 x^4 dx$$

$$\text{№10.2} \quad \int_{-6}^6 (5x + 12) dx$$

$$\text{№10.3} \quad \int_3^5 (3x^2 + 11x + 4) dx$$

$$\text{№10.4} \quad \int_{-1}^2 (6x - x^3 - 3 \cdot 4^x) dx$$

$$\text{№10.5} \quad \int_{\pi/6}^{\pi/3} (3 \sin x + 8 \cos x) dx$$

$$\text{№10.6} \quad \int_0^{\pi/2} \sin^5 x \cdot \cos x dx$$

$$\text{№10.7} \quad \int_{-2}^1 (5x + 3)^3 dx$$

$$\text{№10.8} \quad \int_1^2 (8x - 5) \cdot e^x dx$$

$$\begin{array}{ll} \text{№10.9 } O_x \text{ oky, } & y = 3x + 3 \\ \text{we } x = 1. & \end{array} \quad \begin{array}{l} \text{№10.10 } y = -x + 10, \\ y = 2x - 5, \\ y = x - 2. \end{array}$$

Вариант №14.

$$\begin{array}{ll} \text{№10.1 } \int_2^3 x^5 dx & \text{№10.2 } \int_{-5}^5 (6x - 11) dx \\ \text{№10.3 } \int_2^4 (6x^2 - 10x + 5) dx & \text{№10.4 } \int_{-3}^1 (x + 2x^5 - 4 \cdot 2^x) dx \\ \text{№10.5 } \int_{\pi/3}^{\pi/2} (4 \sin x - 7 \cos x) dx & \text{№10.6 } \int_0^{\pi/3} \cos^4 x \cdot \sin x dx \\ \text{№10.7 } \int_{-1}^2 (10x - 4)^4 dx & \text{№10.8 } \int_3^5 (7x + 6) \cdot e^x dx \\ \text{№10.9 } O_x \text{ oky, } & y = 2x + 2 \\ \text{we } x = 2. & \end{array} \quad \begin{array}{l} \text{№10.10 } y = -x + 11, \\ y = x - 1, \\ y = 0,5x + 0,5. \end{array}$$

Вариант №15.

$$\begin{array}{ll} \text{№10.1 } \int_3^4 x^6 dx & \text{№10.2 } \int_{-4}^4 (7x + 9) dx \\ \text{№10.3 } \int_1^3 (9x^2 - 8x - 7) dx & \text{№10.4 } \int_{-2}^1 (2x + 3x^2 + 5 \cdot 5^x) dx \\ \text{№10.5 } \int_{\pi/6}^{\pi/2} (5 \sin x + 6 \cos x) dx & \text{№10.6 } \int_0^{\pi/6} \sin^3 x \cdot \cos x dx \end{array}$$

$$\text{№10.7} \quad \int_{-3}^1 (2x+1)^5 dx$$

$$\text{№10.8} \quad \int_2^3 (6x-7) \cdot e^x dx$$

$$\text{№10.9} \quad \text{Ох okay, } y = x + 2 \quad \text{we} \quad \text{№10.10} \quad y = -x + 9,$$

$$x = 3.$$

$$y = 2x,$$

$$y = 0,5x + 1,5.$$

Вариант №16.

$$\text{№10.1} \quad \int_1^3 x^2 dx$$

$$\text{№10.2} \quad \int_{-3}^3 (8x-13)dx$$

$$\text{№10.3} \quad \int_3^4 (3x^2 + 12x - 7)dx$$

$$\text{№10.4} \quad \int_{-1}^3 (3x - 4x^4 + 8^x)dx$$

$$\text{№10.5} \quad \int_0^{\pi/2} (6\sin x - 5\cos x) dx$$

$$\text{№10.6} \quad \int_{\pi/6}^{\pi/3} \cos^2 x \cdot \sin x dx$$

$$\text{№10.7} \quad \int_{-2}^3 (x-3)^6 dx$$

$$\text{№10.8} \quad \int_1^3 (5x+8) \cdot e^x dx$$

$$\text{№10.9} \quad \text{Ох okay, } y = -x + 2 \quad \text{we} \quad \text{№10.10} \quad y = -x + 8,$$

$$x = -3.$$

$$y = 2x - 1,$$

$$y = 0,5x + 0,5.$$

Вариант №17.

$$\text{№10.1} \quad \int_2^4 x^3 dx$$

$$\text{№10.2} \quad \int_{-2}^2 (9x+8)dx$$

$$\text{№10.3} \quad \int_2^3 (6x^2 + 7x - 8)dx$$

$$\text{№10.4} \quad \int_{-3}^2 (4x + 5x^6 - 2 \cdot 10^x)dx$$

$$\text{№10.5} \quad \int_0^{\pi/3} (7 \sin x + 4 \cos x) dx$$

$$\text{№10.6} \quad \int_{\pi/3}^{\pi/2} \sin^7 x \cdot \cos x dx$$

$$\text{№10.7} \quad \int_{-1}^3 (4x - 5)^4 dx$$

$$\text{№10.8} \quad \int_3^4 (4x + 9) \cdot e^x dx$$

$$\text{№10.9} \quad \text{Ох окы, } y = x + 4 \text{ we } x = 2.$$

$$\begin{aligned} \text{№10.10} \quad y &= -x + 7, \\ y &= 2x - 2, \\ y &= 0,5x - 0,5. \end{aligned}$$

Вариант №18.

$$\text{№10.1} \quad \int_3^5 x^4 dx$$

$$\text{№10.2} \quad \int_{-1}^1 (10x - 3) dx$$

$$\text{№10.3} \quad \int_1^2 (9x^2 - 2x + 7) dx$$

$$\text{№10.4} \quad \int_{-2}^3 (5x - x^7 + 3 \cdot 2^x) dx$$

$$\text{№10.5} \quad \int_0^{\pi/6} (8 \sin x - 3 \cos x) dx$$

$$\text{№10.6} \quad \int_{\pi/6}^{\pi/2} \cos^6 x \cdot \sin x dx$$

$$\text{№10.7} \quad \int_{-3}^2 (8x + 3)^2 dx$$

$$\text{№10.8} \quad \int_2^4 (3x + 10) \cdot e^x dx$$

$$\text{№10.9} \quad \text{Ох окы, } y = -x + 4 \text{ we } x = -1.$$

$$\begin{aligned} \text{№10.10} \quad y &= -x + 8, \\ y &= 2x - 4, \\ y &= 0,5x - 1. \end{aligned}$$

Вариант №19.

$$\text{№10.1} \quad \int_1^2 x^5 dx$$

$$\text{№10.2} \quad \int_{-6}^6 (6x + 7) dx$$

$$\text{№10.3} \quad \int_3^5 (3x^2 + 5x + 4) dx$$

$$\text{№10.4} \quad \int_{-1}^2 (3x - 4x^3 - 4^x) dx$$

$$\text{№10.5} \quad \int_{\pi/6}^{\pi/3} (9 \sin x + 2 \cos x) dx$$

$$\text{№10.6} \quad \int_0^{\pi/2} \sin^4 x \cdot \cos x dx$$

$$\text{№10.7} \quad \int_{-2}^1 (4x + 1)^6 dx$$

$$\text{№10.8} \quad \int_1^2 (7x - 2) \cdot e^x dx$$

$$\text{№10.9} \quad O_x \text{ oky, } y = -2x + 4 \text{ we } x = -1.$$

$$\text{№10.10} \quad y = -x + 10, \\ y = 2x - 5, \\ y = 0,5x - 0,5.$$

Warient №20.

$$\text{№10.1} \quad \int_2^3 x^6 dx$$

$$\text{№10.2} \quad \int_{-5}^5 (7x - 8) dx$$

$$\text{№10.3} \quad \int_2^4 (6x^2 - 2x + 7) dx$$

$$\text{№10.4} \quad \int_{-3}^1 (4x + 5x^5 - 2 \cdot 2^x) dx$$

$$\text{№10.5} \quad \int_{\pi/3}^{\pi/2} (10 \sin x - 3 \cos x) dx$$

$$\text{№10.6} \quad \int_0^{\pi/3} \cos^3 x \cdot \sin x dx$$

$$\text{№10.7} \quad \int_{-1}^2 (2x - 5)^5 dx$$

$$\text{№10.8} \quad \int_3^5 (6x + 7) \cdot e^x dx$$

$$\text{№10.9} \quad O_x \text{ oky, } y = x + 1 \text{ we } x = 3.$$

$$\text{№10.10} \quad y = -x + 10, \\ y = 2x - 2, \\ y = x.$$

Wariant №21.

$$\text{№10.1} \quad \int_3^4 x^2 dx$$

$$\text{№10.2} \quad \int_{-4}^4 (8x + 3) dx$$

$$\text{№10.3} \quad \int_1^3 (9x^2 - 4x - 11) dx$$

$$\text{№10.4} \quad \int_{-2}^1 (5x + x^2 + 3 \cdot 5^x) dx$$

$$\text{№10.5} \quad \int_{\pi/6}^{\pi/2} (11 \sin x + 2 \cos x) dx$$

$$\text{№10.6} \quad \int_0^{\pi/6} \sin^2 x \cdot \cos x dx$$

$$\text{№10.7} \quad \int_{-3}^1 (10x + 9)^2 dx$$

$$\text{№10.8} \quad \int_2^3 (5x - 4) \cdot e^x dx$$

$$\text{№10.9} \quad \text{On oky, } y = x - 1 \quad \text{we } x = 4.$$

$$\text{№10.10} \quad y = -x + 9, \\ y = x + 1, \\ y = 0,5x + 1,5.$$

Wariant №22.

$$\text{№10.1} \quad \int_1^3 x^3 dx$$

$$\text{№10.2} \quad \int_{-3}^3 (9x - 10) dx$$

$$\text{№10.3} \quad \int_3^4 (3x^2 + 7x - 6) dx$$

$$\text{№10.4} \quad \int_{-1}^3 (x - 2x^4 + 4 \cdot 8^x) dx$$

$$\text{№10.5} \quad \int_0^{\pi/2} (12 \sin x - 7 \cos x) dx$$

$$\text{№10.6} \quad \int_{\pi/6}^{\pi/3} \cos^7 x \cdot \sin x dx$$

$$\text{№10.7} \quad \int_{-2}^3 (8x - 3)^3 dx$$

$$\text{№10.8} \quad \int_1^3 (4x + 5) \cdot e^x dx$$

$$\begin{array}{ll} \text{№10.9 } O_x \text{ oky, } y = -x + 1 \text{ we } & \text{№10.10 } y = -x + 11, \\ x = -3. & y = 2x - 4, \\ & y = x - 1. \end{array}$$

Wariant №23.

$$\begin{array}{ll} \text{№10.1 } \int_2^4 x^4 dx & \text{№10.2 } \int_{-2}^2 (10x + 1) dx \\ \text{№10.3 } \int_2^3 (6x^2 + 2x - 9) dx & \text{№10.4 } \int_{-3}^2 (2x + 3x^6 - 5 \cdot 10^x) dx \\ \text{№10.5 } \int_0^{\pi/3} (13 \sin x + 5 \cos x) dx & \text{№10.6 } \int_{\pi/3}^{\pi/2} \sin^6 x \cdot \cos x dx \\ \text{№10.7 } \int_{-1}^3 (5x - 3)^4 dx & \text{№10.8 } \int_3^4 (3x + 11) \cdot e^x dx \\ \text{№10.9 } O_x \text{ oky, } y = x + 4 \text{ we } & \text{№10.10 } y = -x + 9, \\ x = 1. & y = x - 1, \\ & y = 0,5x. \end{array}$$

Wariant №24.

$$\begin{array}{ll} \text{№10.1 } \int_3^5 x^5 dx & \text{№10.2 } \int_{-1}^1 (11x - 4) dx \\ \text{№10.3 } \int_1^2 (9x^2 - 4x + 11) dx & \text{№10.4 } \int_{-2}^3 (3x - 4x^7 + 2^x) dx \\ \text{№10.5 } \int_0^{\pi/6} (14 \sin x - 9 \cos x) dx & \text{№10.6 } \int_{\pi/6}^{\pi/2} \cos^5 x \cdot \sin x dx \end{array}$$

$$\text{№10.7} \quad \int_{-3}^2 (4x+5)^2 dx$$

$$\text{№10.8} \quad \int_2^4 (2x+7) \cdot e^x dx$$

$$\text{№10.9} \quad \text{Ох okay, } y = x + 2 \quad \text{we} \quad \text{№10.10} \quad y = -x + 10,$$

$$x = 1.$$

$$y = x - 2,$$

$$y = 0,5x - 0,5.$$

Wariant №25.

$$\text{№10.1} \quad \int_1^2 x^6 dx$$

$$\text{№10.2} \quad \int_{-6}^6 (7x+6) dx$$

$$\text{№10.3} \quad \int_3^5 (3x^2 + 5x + 4) dx$$

$$\text{№10.4} \quad \int_{-1}^2 (4x - 5x^3 - 2 \cdot 4^x) dx$$

$$\text{№10.5} \quad \int_{\pi/6}^{\pi/3} (4 \sin x + 5 \cos x) dx$$

$$\text{№10.6} \quad \int_0^{\pi/2} \sin^3 x \cdot \cos x dx$$

$$\text{№10.7} \quad \int_{-2}^1 (2x+3)^5 dx$$

$$\text{№10.8} \quad \int_1^2 (6x-1) \cdot e^x dx$$

$$\text{№10.9} \quad \text{Ох okay, } y = x + 3 \quad \text{we} \quad \text{№10.10} \quad y = -x + 8,$$

$$x = 1.$$

$$y = x,$$

$$y = 0,5x + 0,5.$$

Wariant №26.

$$\text{№10.1} \quad \int_2^3 x^2 dx$$

$$\text{№10.2} \quad \int_{-5}^5 (8x-5) dx$$

$$\text{№10.3} \quad \int_2^4 (6x^2 - 3x + 8) dx$$

$$\text{№10.4} \quad \int_{-3}^1 (5x + x^5 - 3 \cdot 2^x) dx$$

$$\text{№10.5} \quad \int_{\pi/3}^{\pi/2} (5 \sin x - 4 \cos x) dx$$

$$\text{№10.6} \quad \int_0^{\pi/3} \cos^2 x \cdot \sin x dx$$

$$\text{№10.7} \quad \int_{-1}^2 (4x - 1)^6 dx$$

$$\text{№10.8} \quad \int_3^5 (5x + 2) \cdot e^x dx$$

$$\text{№10.9} \quad \text{Ох ох, } y = -2x + 2 \\ \text{we } x = -2.$$

$$\text{№10.10} \quad y = -x + 11, \\ y = 2x - 4, \\ y = 0,5x + 0,5.$$

Wariant №27.

$$\text{№10.1} \quad \int_3^4 x^3 dx$$

$$\text{№10.2} \quad \int_{-4}^4 (9x + 4) dx$$

$$\text{№10.3} \quad \int_1^3 (9x^2 - 4x - 3) dx$$

$$\text{№10.4} \quad \int_{-2}^1 (x + 2x^2 + 4 \cdot 5^x) dx$$

$$\text{№10.5} \quad \int_{\pi/6}^{\pi/2} (6 \sin x + 11 \cos x) dx$$

$$\text{№10.6} \quad \int_0^{\pi/6} \sin^7 x \cdot \cos x dx$$

$$\text{№10.7} \quad \int_{-3}^1 (8x + 1)^2 dx$$

$$\text{№10.8} \quad \int_2^3 (4x - 3) \cdot e^x dx$$

$$\text{№10.9} \quad \text{Ох ох, } y = x + 2 \\ x = 2.$$

$$\text{№10.10} \quad y = -x + 9, \\ y = 2x, \\ y = x + 1.$$

Wariant №28.

$$\text{№10.1} \quad \int_1^3 x^4 dx$$

$$\text{№10.2} \quad \int_{-3}^3 (10x - 7) dx$$

$$\text{№10.3} \quad \int_3^4 (3x^2 + 7x - 10) dx$$

$$\text{№10.4} \quad \int_{-1}^3 (2x - 3x^4 + 5 \cdot 8^x) dx$$

$$\text{№10.5} \quad \int_0^{\pi/2} (7 \sin x - 2 \cos x) dx$$

$$\text{№10.6} \quad \int_{\pi/6}^{\pi/3} \cos^6 x \cdot \sin x dx$$

$$\text{№10.7} \quad \int_{-2}^3 (10x - 5)^7 dx$$

$$\text{№10.8} \quad \int_1^3 (3x + 4) \cdot e^x dx$$

$$\text{№10.9} \quad \text{Ox oky, } y = -x + 2 \text{ we } x = -2.$$

$$\begin{aligned} \text{№10.10} \quad y &= -x + 8, \\ y &= 2x + 2, \\ y &= x + 2. \end{aligned}$$

Wariant №29.

$$\text{№10.1} \quad \int_2^4 x^5 dx$$

$$\text{№10.2} \quad \int_{-2}^2 (11x + 2) dx$$

$$\text{№10.3} \quad \int_2^3 (6x^2 + 2x - 13) dx$$

$$\text{№10.4} \quad \int_{-3}^2 (3x + 4x^6 - 10^x) dx$$

$$\text{№10.5} \quad \int_0^{\pi/3} (8 \sin x + 13 \cos x) dx$$

$$\text{№10.6} \quad \int_{\pi/3}^{\pi/2} \sin^5 x \cdot \cos x dx$$

$$\text{№10.7} \quad \int_{-1}^3 (x - 1)^9 dx$$

$$\text{№10.8} \quad \int_3^4 (2x - 5) \cdot e^x dx$$

$$\text{№10.9 } O_x \text{ oky, } y = x - 1 \text{ we } x = 5.$$

$$\text{№10.10 } y = -x + 7, \\ y = 2x + 1, \\ y = x + 1.$$

Wariant №30.

$$\text{№10.1 } \int_3^5 x^6 dx$$

$$\text{№10.2 } \int_{-1}^1 (12x - 1) dx$$

$$\text{№10.3 } \int_1^2 (9x^2 - 5x + 3) dx$$

$$\text{№10.4 } \int_{-2}^3 (4x - 5x^7 + 2 \cdot 2^x) dx$$

$$\text{№10.5 } \int_0^{\pi/6} (9 \sin x - 11 \cos x) dx$$

$$\text{№10.6 } \int_{\pi/6}^{\pi/2} \cos^4 x \cdot \sin x dx$$

$$\text{№10.7 } \int_{-3}^2 (5x + 2)^3 dx$$

$$\text{№10.8 } \int_2^4 (x + 6) \cdot e^x dx$$

$$\text{№10.9 } O_x \text{ oky, } y = -x + 3 \text{ we } x = -1.$$

$$\text{№10.10 } y = -x + 9, \\ y = 2x - 3, \\ y = 0,5x.$$

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