

**Sirojiddin TURDALIYEV,  
Hamidullo HAMROQULOV**

**9-SINF UCHUN**

# **ALGEBRADAN TEST MATERIALLARI**

Umumiy o'rta ta'lim maktablari matematika  
o'qituvchilari uchun

(Uslubiy qo'llanma)

«Farg'ona» nashriyoti,

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**Taqrizchilar:**

A.O'rinov, Farg'ona davlat universiteti professori, fizika-matematika fanlari doktori;

Z.Mo'minov, Farg'ona viloyati XTXQTUMOI dotsenti, fizika-matematika fanlari nomzodi.

**TURDALIYEV Sirojiddin, HAMROQULOV Hamidullo**  
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Ushbu uslubiy qo'llanmada 9-sinf algebra darsligining har bir bobiga oid ikkita variantda test topshiriqlari berilgan. Bu test topshiriqlaridan o'quvchilarning olgan bilimlarini tekshirish va aniqlashda foydalanish mumkin.

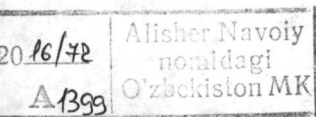
Mazkur qo'llanma umumiy o'rta ta'lim maktablari matematika o'qituvchilari va o'quvchilarga mo'ljallangan.

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## SO‘Z BOSHI

Hozirgi kunda umumiy o‘rta ta‘lim maktablarida matematika fanidan o‘quvchilarning olgan bilimlarini tekshirish va aniqlash asosan test nazorat ishlari yordamida amalga oshirilmogda.

Ushbu qo‘llanma asosan matematika fanidan umumiy o‘rta ta‘limning Davlat ta‘limi standarti talablari va o‘quv dasturlari, shuningdek, 2014-yilda «O‘qituvchi» nashriyot-matbaa ijodiy uyi tomonidan 9-sinf uchun nashr etilgan Sh.Alimov va boshqalar muallifligidagi «Algebra» darsligida belgilangan mavzularga moslab tuzilgan test topshiriqlarini o‘z ichiga olgan.

Qo‘llanmada keltirilgan topshiriqlardagi mashqlarning shartlarini bir-biridan farqli, har xil qiyinlikda, teng kuchli qilib ikkita variantda tuzilgan. Har bir variant 20 tadan mashqlarni qamrab olgan. Bitta variantdagi topshiriqlarni bajarish uchun 35-40 daqiqa vaqt ajratish tavsiya etiladi. Test topshiriqlarida berilgan har bir mashqning to‘rtta javobi bo‘lib, ulardan bittasi to‘g‘ri, qolgan uchtasi esa noto‘g‘ri. Noto‘g‘ri javoblardagi xatolar ham ilmiy tomondan asoslangan bo‘lib, o‘quvchilarning to‘g‘ri javobni tez topa olishi, og‘zaki va yozma ravishda hisoblashi uchun mos qilib tuzilgan.

Qo‘llanmadagi mashqlar o‘quvchilarning matematik bilimlarni chuqur o‘zlashtirishiga, mustaqil ishlash malakalarini shakllantirishga, faol fikrlashiga ijobiy ta‘sir ko‘rsatadi. Qo‘llanma umumiy o‘rta ta‘lim maktablari matematika o‘qituvchilariga test nazorat ishlarini o‘tkazishda asqotadi, deb umid qilamiz.

Ushbu qo‘llanma yuzasidan o‘z fikr-mulohazalari va maslahatlarini bildirgan hamkasblarimizga minnatdorchiilik bildiramiz.

*Mualliflar*







## 2-variant

1. Quyida berilgan funksiyalardan qaysi biri kvadrat funksiya bo'lmaydi:

- 1)  $y=9x^2-2$ ;      2)  $y=3x^2-x+2$ ;      3)  $y=6x+5$ ?  
A) 2;      B) 1 va 2;  
C) 3;      D) 1.

2. Agar  $x=3$  bo'lsa,  $y=x^2-15x+20$  funksiya qiymatini toping.

- A) 34;      B) -16;  
C) 16;      D) -34.

3. Kvadrat funksiyaning nollarini toping:  $y=3x^2-x$ .

- A)  $x_1=0$ ;  $x_2 = -\frac{1}{3}$ ;      B)  $x_1 = 0$ ;  $x_2 = 3$ ;  
C)  $x_1 = 1$ ;  $x_2 = -3$ ;      D)  $x_1 = 0$ ;  $x_2 = \frac{1}{3}$ .

4. Kvadrat funksiyaning nollarini toping:  $y=x^2+6x+5$ .

- A)  $x_1=-1$ ;  $x_2=-5$ ;      B)  $x_1=-1$ ;  $x_2=5$ ;  
C)  $x_1=1$ ;  $x_2=5$ ;      D)  $x_1=1$ ;  $x_2=-5$ .

5. Agar  $y=x^2+px+q$  kvadrat funksiyaning  $x_1=3$  va  $x_2=-2$  nollari ma'lum bo'lsa,  $p$  va  $q$  koeffitsiyentlarni toping.

- A)  $p=2$ ;  $q=-6$ ;      B)  $p=-1$ ;  $q=-6$ ;  
C)  $p=-2$ ;  $q=-1$ ;      D)  $p=1$ ;  $q=6$ .

6.  $x$  ning  $y=x^2+3x-3$  va  $y=3x+1$  funksiyalar teng qiymatlar qabul qiladigan qiymatlarini toping.

- A)  $x=2$ ;      B)  $x_{1,2}=\pm 3$ ;  
C)  $x_{1,2}=\pm 2$ ;      D)  $x=3$ .

7.  $y=x^2$  parabola bilan  $y=9$  to'g'ri chiziqning kesishish nuqtalari koordinatalarini toping.

- A) (3; 9); (-3; 9);      B) (3; 9);  
C) (2; 4);      D) (2; 9); (0; 3).

8.  $y=x^2$  funksiyaning grafigiga tegishli bo'lgan nuqtalarning koordinatalarini aniqlang:

- 1) (2; 3);      2) (3; 9);      3) (2; 4);      4) (1; 2).

- A) 4;  
C) 1;

- B) 1 va 4;  
D) 2 va 3.

9. Agar  $a < 0$  bo'lsa,  $y = ax^2$  funksiyaning grafigi qaysi choraklarda joylashgan?

- A) I, II chorakda;  
C) II, III chorakda;

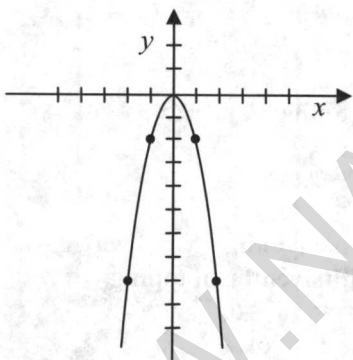
- B) III, IV chorakda;  
D) II, IV chorakda.

10.  $y = 40x^2$  funksiyaning grafigi qaysi choraklardan o'tadi?

- A) II, IV chorakda;  
C) I, II chorakda;

- B) I, III chorakda;  
D) III, IV chorakda.

11. Grafigi parabola bilan tasvirlangan funksiyaning formulasini aniqlang:



A)  $-\frac{1}{2}x^2$ ;

B)  $y = -3x^2$ ;

C)  $y = -x^2$ ;

D)  $y = -2x^2$ .

12.  $y = 50x^2$  funksiyaning grafigiga tegishli bo'lgan nuqtalarning koordinatalarini aniqlang:

1) (-2; 100); 2) (2; 200); 3) (-3; 150); 4) (3; 450).

A) 1 va 3;

B) 1;

C) 3;

D) 2 va 4.

13. Parabola uchining koordinatalarini toping:  $y = x^2 + 2x$ .

A) (1; -1);

B) (1; 1);



C)  $(-1; -1)$ ;

D)  $(-1; 1)$ .

**14. Parabola uchining koordinatalarini toping:**  $y = -x^2 + 6x$ .

A)  $(3; 0)$ ;

B)  $(3; 9)$ ;

C)  $(0; 9)$ ;

D)  $(-3; -9)$ .

**15.  $y = x^2 + 4x$  parabola qaysi choraklarda joylashgan?**

A) I, III, IV choraklarda;

B) II, III, IV choraklarda;

C) I, II, III choraklarda;

D) I, II, III, IV choraklarda.

**16. Parabola qaysi choraklarda joylashgan:**  $y = x^2 + 6x - 7$ .

A) I, II, IV choraklarda;

B) I, II, III, IV choraklarda;

C) II, III, IV choraklarda;

D) I, II, III choraklarda.

**17. Parabolaning koordinata o'qlari bilan kesishish nuqtalari koordinatalarini toping:**  $y = 9x^2 + 18$ .

A)  $(-2; 0)$ ;

B)  $(0; -18)$ ;

C)  $(0; 18)$ ;

D)  $(0; 2)$ .

**18. Parabola uchining koordinatalarini toping:**  $y = x^2 - 12x$ .

A)  $(6; 36)$ ;

B)  $(-6; 36)$ ;

C)  $(6; 72)$ ;

D)  $(6; -36)$ .

**19. Kvadrat funksiyaning nollarini toping:**  $y = 2x^2 + 3x + 1$ .

A)  $x_1 = -\frac{1}{2}$ ;  $x_2 = -1$ ;

B)  $x_1 = \frac{1}{2}$ ;  $x_2 = 1$ ;

C)  $x_1 = \frac{1}{3}$ ;  $x_2 = -1$ ;

D)  $x_1 = 0$ ;  $x_2 = 1$ .

**20. Parabola uchining koordinatalarini toping:**  $y = x^2 + 10x - 39$ .

A)  $(5; 14)$ ;

B)  $(-5; -64)$ ;

C)  $(5; 64)$ ;

D)  $(-5; -14)$ .



A)  $x \leq -\frac{1}{2}$ ;

B)  $x \geq -\frac{1}{4}$ ;

C)  $x \leq \frac{1}{4}$ ;

D)  $x \geq \frac{1}{2}$ .

10. Kvadrat tengsizlikni yeching:  $x^2 - 4x + 3 > 0$ .

A)  $x < 3$ ;

B)  $1 < x < 3$ ;

C)  $x > 3, x < 1$ ;

D)  $x > 3$ .

11. Kvadrat tengsizlikni yeching:  $3x^2 - 5x - 2 > 0$ .

A)  $x < -2, x > \frac{1}{3}$ ;

B)  $x < 2$ ;

C)  $-\frac{1}{3} < x < 2$ ;

D)  $x > 2, x < -\frac{1}{3}$ .

12. Tengsizlikni yeching:  $\frac{x-5}{x+1} < 0$ .

A)  $x < 5$ ;

B)  $-5 < x < 1$ ;

C)  $-1 < x < 5$ ;

D)  $x > 5, x < 1$ .

13. Tengsizlikni yeching:  $\frac{3x-2}{x} \geq 3$ .

A)  $x \geq \frac{2}{3}, x \geq 0$ ;

B) yechimlari yo'q;

C)  $x$  - istalgan haqiqiy son;

D)  $x \geq 0$ .

14. Tengsizlikni yeching:  $(x-2)(x+7) \geq 0$ .

A)  $x \geq 2, x \leq -7$ ;

B)  $-7 \leq x \leq 2$ ;

C)  $x \geq -7$ ;

D)  $x \leq 2$ .

15. Tengsizlikni yeching:  $(x+3)(x-10) < 0$ .

A)  $x < -3$ ;

B)  $x > 10$ ;

C)  $x \leq -3, x > 10$ ;

D)  $-3 < x < 10$ .

16. Tengsizlikni yeching:  $(x-3)(x^2-9) > 0$ .

A)  $3 < x < 9, x < 3$ ;

B)  $-3 < x < 3, x > 3$ ;

C)  $x > 3, x < -3$ ;

D)  $x > 3, x > 9$ .

17. Tengsizlikni yeching:  $\frac{(x-4)(x+2)}{x+1} \geq 0$ .

A)  $x \geq 4, x \leq -2$ ;

B)  $-4 \leq x \leq -1$ ;

C)  $-2 \leq x \leq 4$ ;

D)  $-2 \leq x < -1, x \geq 4$ .

18. Tengsizlikni yeching:  $x^2 - 2x - 15 \leq 0$ .

- A)  $-3 \leq x \leq 5$ ;                      B)  $x \geq 5, x \leq 3$ ;  
C)  $x \leq -3$ ;                              D)  $-3 < x < 5$ .

19. Tengsizlikni yeching:  $x^2 - 121 \geq 0$ .

- A)  $-11 \leq x \leq 11$ ;                      B)  $x \geq -11$ ;  
C)  $x \geq 11, x \leq -11$ ;                      D)  $x \leq 11$ .

20. Tengsizlikni yeching:  $9x^3 - x > 0$ .

- A)  $-\frac{1}{3} < x < \frac{1}{3}$ ;                              B)  $-\frac{1}{3} < x < 0, x > \frac{1}{3}$ ;  
C)  $0 < x < \frac{1}{3}, x < \frac{1}{3}$ ;                              D)  $x < \frac{1}{3}, x > -\frac{1}{3}$ .

*2-variant*

1. Tengsizlikni yeching:  $-8x < 56$ .

- A)  $x < 7$ ;                                      B)  $x > 7$ ;  
C)  $x > -7$ ;                                      D)  $x < -7$ .

2. Tengsizlikni yeching:  $13x + 7 \leq 10 + 14x$ .

- A)  $x \leq -4$ ;                                      B)  $x \leq -3$ ;  
C)  $x \geq 4$ ;                                      D)  $x \geq -3$ .

3. Tengsizlikni kvadrat tengsizlik ko'rinishiga keltiring:

$3x^2 < x + 2$ .

- A)  $3x^2 - x + 2 > 0$ ;                              B)  $3x^2 + x + 2 < 0$ ;  
C)  $3x^2 - x - 2 < 0$ ;                              D)  $3x^2 + x - 2 > 0$ .

4. Tengsizlikni kvadrat tengsizlik ko'rinishiga keltiring:

$6x^2 \geq 3x - (5 - 4x^2)$ .

- A)  $2x^2 - 3x + 5 \geq 0$ ;                              B)  $2x^2 - 3x + 5 \leq 0$ ;  
C)  $2x^2 + 3x - 5 \geq 0$ ;                              D)  $11x^2 + 3x - 5 \geq 0$ .

5. Tengsizlikni yeching:  $x^2 \leq 9$ .

- A)  $x \geq 3, x \leq -3$ ;                              B)  $-3 \leq x \leq 3$ ;  
C)  $x \leq 3, x \leq -3$ ;                              D)  $0 \leq x \leq 3$ .

6. Tengsizlikni yeching:  $x^2 + 8x \geq 0$ .

- A)  $-8 \leq x \leq 0$ ;                      B)  $x \leq 0$ ;  
C)  $x \geq -8$ ;                              D)  $x \geq 0, x \leq -8$ .

**7. Tengsizlikni yeching:**  $-x^2 + 5x < 0$ .

- A)  $x > 0, x < 5$ ;                      B)  $x > 0$ ;  
C)  $x < 0, x > 5$ ;                      D)  $0 < x < 5$ .

**8. Tengsizlikni yeching:**  $(x+1)(x-9) > 0$ .

- A)  $x > 9$ ;                                  B)  $x > 9, x < -1$ ;  
C)  $x > 0, x < 9$ ;                      D)  $-1 < x < 9$ .

**9. Tengsizlikni yeching:**  $-(3x - \frac{1}{3}) \leq 0$ .

- A)  $x \geq \frac{1}{9}$ ;                                  B)  $x \leq \frac{1}{3}$ ;  
C)  $x \leq \frac{1}{9}$ ;                                  D)  $x \geq 0$ .

**10. Kvadrat tengsizlikni yeching:**  $x^2 - 2x - 8 > 0$ .

- A)  $-2 < x < 4$ ;                          B)  $x > 4$ ;  
C)  $x < 4$ ;                                  D)  $x > 4, x < -2$ .

**11. Kvadrat tengsizlikni yeching:**  $2x^2 + 5x - 3 > 0$ .

- A)  $x > -3$ ;                                  B)  $x < \frac{1}{2}$ ;  
C)  $x > \frac{1}{2}, x < -3$ ;                      D)  $-3 < x < \frac{1}{2}$ .

**12. Tengsizlikni yeching:**  $\frac{x-4}{x+1} < 0$ .

- A)  $x < -1$ ;                                  B)  $-1 < x < 4$ ;  
C)  $0 < x < 4$ ;                              D)  $x > 4$ .

**13. Tengsizlikni yeching:**  $\frac{5x-3}{x} \geq 5$ .

- A) yechimlari yo'q;                      B)  $x \geq \frac{3}{5}$ ;  
C)  $x \geq 5$ ;                                  D)  $x$  – istalgan haqiqiy son.

**14. Tengsizlikni yeching:**  $(x-1)(x+6) < 0$ .

- A)  $x < 1$ ;                                      B)  $x > -6$ ;  
C)  $x > 1, x < -6$ ;                      D)  $-6 < x < 1$ .

15. Tengsizlikni yeching:  $(x-3)(x+12) \geq 0$ .

- A)  $x \leq 3$ ; B)  $x \geq 3, x \leq -12$ ;  
C)  $-12 \leq x \leq 3$ ; D)  $x \geq -12$ .

16. Tengsizlikni yeching:  $(x-2)(x^2-4) > 0$ .

- A)  $-2 < x < 4$ ; B)  $-2 < x < 2, x > 2$ ;  
C)  $-2 < x < 2$ ; D)  $x > 2, x < 2$ .

17. Tengsizlikni yeching:  $\frac{(x-5)(x+3)}{x+1} \geq 0$ .

- A)  $-3 \leq x \leq -1, x \geq 5$ ; B)  $x \geq 5, x \leq -3$ ;  
C)  $-1 \leq x \leq 5, x \leq -3$ ; D)  $-3 \leq x \leq 5$ .

18. Tengsizlikni yeching:  $x^2-4x-21 \leq 0$ .

- A)  $x \geq 7, x \leq -3$ ; B)  $-3 \leq x \leq 7$ ;  
C)  $x \leq 7$ ; D)  $x \geq -3$ .

19. Tengsizlikni yeching:  $x^2-144 \geq 0$ .

- A)  $x \leq 12$ ; B)  $x \geq -12$ ;  
C)  $x \geq 12, x \leq -12$ ; D)  $-12 \leq x \leq 12$ .

20. Tengsizlikni yeching:  $4x^3-x > 0$ .

- A)  $-\frac{1}{3} < x < 0, x \leq -\frac{1}{2}$ ; B)  $x > \frac{1}{2}, x < -\frac{1}{2}$ ;  
C)  $-\frac{1}{2} < x < 0, x > \frac{1}{2}$ ; D)  $-\frac{1}{2} < x < \frac{1}{2}$ .

### 3-§. RATSIONAL KO'RSATKICHLI DARAJA

3-test ishi

1-variant

1. Hisoblang:  $(-2)^5 + (-5)^3$ .

A) 93;

B) -157;

C) -93;

D) 157.

2. Hisoblang:  $2^3 + (-4)^2 - (-2)^2$ .

A) 28;

B) -12;

C) -20;

D) 20.

3. Hisoblang:  $\sqrt[3]{8 \cdot 27}$ .

A) 4;

B) 9;

C) 6;

D) 8.

4. Hisoblang:  $\sqrt[3]{0,008 \cdot 125}$ .

A) 1;

B) 2;

C) 5;

D) 3.

5. Tenglamani yeching:  $x^4 = 81$ .

A)  $x=2$ ;

B)  $x_1=2, x_2=-2$ ;

C)  $x=3$ ;

D)  $x_1=3, x_2=-3$ .

6. Hisoblang:  $\sqrt[3]{13^6} \cdot \sqrt{\sqrt{2^8}}$ .

A) 507;

B) 674;

C) 338;

D) 845.

7. Ifodani soddalashtiring:  $\sqrt[3]{2a^2b} \cdot \sqrt[3]{4a^4b^2}$ .

A)  $6a^2b$ ;

B)  $2ab^2$ ;

C)  $4a^2b^2$ ;

D)  $2a^2b$ .

8. Ifodani soddalashtiring:  $\sqrt[3]{4\sqrt{a^{24}}} + \left(\sqrt[3]{\sqrt{a^6}}\right)^2$ .

A)  $2a^2$ ;

B)  $3a^2$ ;

C)  $2a^3$ ;

D)  $3a^4$ .

9. Hisoblang:  $\sqrt{\sqrt[3]{\sqrt{64^2}}}$ .

- A) 2; B) 3;  
C) 6; D) 4.

10. Hisoblang:  $\sqrt[4]{9\sqrt{81}}$ .

- A) 8; B) 4;  
C) 9; D) 3.

11. Hisoblang:  $8^{\frac{2}{3}} \cdot 4^{\frac{1}{2}} \cdot 16^{\frac{3}{4}}$ .

- A) 81; B) 64;  
C) 32; D) 49.

12. Hisoblang:  $27^{\frac{2}{3}} \cdot 9^{\frac{1}{2}}$ .

- A) 6; B) 2;  
C) 9; D) 3.

13. Ratsional ko'rsatkichli daraja shaklida tasvirlang:

$$a^{\frac{1}{4}} \cdot a^{\frac{1}{3}} \cdot \sqrt[12]{a}.$$

- A)  $a^{\frac{2}{3}}$ ; B)  $a^{\frac{1}{2}}$ ;  
C)  $a^{\frac{1}{3}}$ ; D)  $a$ .

14. Ifodani soddalashtiring:  $\frac{m-n}{\frac{1}{m^2} + \frac{1}{n^2}}$ .

- A)  $m^{\frac{1}{2}} + n^{\frac{1}{2}}$ ; B)  $m^{\frac{1}{2}} - n^{\frac{1}{2}}$ ;  
C)  $2m^{\frac{1}{2}} n^{\frac{1}{2}}$ ; D)  $m-n$ .

15. Hisoblang:  $12 - 6\sqrt[3]{0,125}$ .

- A) 10; B) 9;  
C) 6; D) 8.

16. Tenglamani yeching:  $7^{3x-1} = 49$ .

- A) 2; B) 3;



C) 0;

D) 1.

17. Hisoblang:  $\sqrt[3]{8 - \sqrt{37}} \cdot \sqrt[3]{8 + \sqrt{37}}$ .

A) 4;

B) 3;

C) 2;

D) 8.

18. Agar  $m = 4$  bo'lsa,  $\sqrt[4]{m} \cdot \sqrt[4]{m}$  ifodaning son qiymatini toping.

A) 8;

B) 6;

C) 2;

D) 4.

19. Ifodani soddalashtiring:  $n^{\frac{1}{2}} \sqrt[3]{n^4 \sqrt{n}}$ .

A)  $n^{\frac{1}{2}}$ ;

B)  $n^{\frac{1}{3}}$ ;

C)  $n$ ;

D)  $2n^{\frac{1}{2}}$ .

20. Ifodani soddalashtiring:  $\frac{a^{\frac{1}{2}} - b^{\frac{1}{2}}}{a - 2a^{\frac{1}{2}} b^{\frac{1}{2}} + b}$ .

A)  $\frac{1}{a + b}$ ;

B)  $\frac{1}{a^{\frac{1}{2}} - b^{\frac{1}{2}}}$ ;

C)  $a^{\frac{1}{2}} + b^{\frac{1}{2}}$ ;

D)  $a^{\frac{1}{2}} - b^{\frac{1}{2}}$ .

## 2-variant

1. Hisoblang:  $(-3)^4 + (-4)^3$ .

A) 145;

B) 27;

C) 17;

D) 135.

2. Hisoblang:  $3^2 + (-2)^3 - (-2)^2$ .

A) -4;

B) 13;

C) 10;

D) -3.

3. Hisoblang:  $\sqrt[4]{16 \cdot 81}$ .

A) 6;

B) 8;

C) 4;

D) 12.

4. Hisoblang:  $\sqrt[3]{0,027 \cdot 64}$ .

A) 1,3;

B) 1,2;

C) 12;

D) 14.

5. Tenglamani yeching:  $x^3 = 125$ .

A)  $x = -5$ ;

B)  $x_1 = 5, x_2 = -5$ ;

C)  $x_1 = 4, x_2 = -4$ ;

D)  $x = 5$ .

6. Hisoblang:  $\sqrt[3]{12^6} \cdot \sqrt{\sqrt{3^8}}$ .

A) 464;

B) 1296;

C) 432;

D) 1276.

7. Ifodani soddalashtiring:  $\sqrt[3]{3ab^2} \cdot \sqrt[3]{9a^2b^4}$ .

A)  $a^2b$ ;

B)  $2ab^2$ ;

C)  $3ab^2$ ;

D)  $\frac{1}{3}a^2b$ .

8. Ifodani soddalashtiring:  $\sqrt[4]{\sqrt[3]{b^{24}}} + \left(\sqrt{\sqrt[4]{b^8}}\right)^2$ .

A)  $b^2$ ;

B)  $3b^2$ ;

C)  $2b^2$ ;

D)  $3b^3$ .

9. Hisoblang:  $\sqrt{\sqrt[4]{\sqrt[3]{256^2}}}$ .

A) 8;

B) 2;

C) 4;

D) 6.

10. Hisoblang:  $\sqrt[6]{8\sqrt{64}}$ .

A) 4;

B) 6;

C) 8;

D) 2.

11. Hisoblang:  $16^{\frac{3}{4}} \cdot 8^{\frac{1}{3}} \cdot 32^{\frac{2}{5}}$ .



C) 6;

D) 2.

19. Ifodani soddalashiring:  $m^{\frac{5}{18}} \sqrt[6]{m^3 \sqrt{m}}$ .

A)  $n^{\frac{2}{3}}$ ;

B)  $n^{\frac{1}{2}}$ ;

C)  $n^{\frac{1}{3}}$ ;

D)  $n$ .

20. Ifodani soddalashtiring:  $\frac{a+2a^{\frac{1}{2}}b^{\frac{1}{2}}+b}{a^{\frac{1}{2}}+b^{\frac{1}{2}}}$ .

A)  $a^{\frac{1}{2}} + b^{\frac{1}{2}}$ ;

B)  $\frac{1}{a^{\frac{1}{2}} + b^{\frac{1}{2}}}$ ;

C)  $a^{\frac{1}{2}} - b^{\frac{1}{2}}$ ;

D)  $\frac{1}{a-b}$ .

#### 4-§. DARAJALI FUNKSIYA

4-test ishi

1-variant

1. Funksiya  $y(x)=x^2-3x-4$  formula bilan berilgan.  $y(3)$  ni toping.

A) 3;

B) -4;

C) -3;

D) 4.

2. Funksiya  $y(x)=\frac{x+7}{x-3}$  formula bilan berilgan.  $y(5)$  ni toping.

A) 7;

B) 5;

C) 4;

D) 6.

3. Funksiyaning aniqlanish sohasini toping:  $y=4x-8$ .

A)  $x > -2$ ;

B)  $x$  - istalgan son;

C)  $x \neq -2$ ;

D)  $x \geq 2$ .

4. Funksiyaning aniqlanish sohasini toping:  $y = \sqrt{x+3}$ .

A)  $x > 3$ ;

B)  $x \geq 3$ ;

C)  $x < -3$ ;

D)  $x \geq -3$ .

5. **Funksiyaning aniqlanish sohasini toping:**

$$y = \sqrt[4]{x^2 - 8x + 7}.$$

- A)  $1 < x < 7$ ; B)  $1 \leq x \leq 7$ ;  
C)  $x \geq 7, x \leq 1$ ; D)  $0 < x < 1$ .

6. **Funksiya juft yoki toq bo'lishini aniqlang:**  $y = 5x^4$ .

- A) juft ham, toq ham bo'lmaydi; B) toq;  
C) aniqlab bo'lmaydi; D) juft.

7. **Funksiya juft yoki toq bo'lishini aniqlang:**  $y = -7x^5$ .

- A) toq; B) aniqlab bo'lmaydi;  
C) juft; D) juft ham, toq ham bo'lmaydi.

8. **Agar  $k > 0$  bo'lsa,  $y = \frac{k}{x}$  funksiya grafigi qaysi choraklarda joylashgan?**

- A) I, II chorakda; B) I, III chorakda;  
C) III, IV chorakda; D) II, IV chorakda.

9.  **$y = -\frac{2}{x}$  funksiya grafigi qaysi choraklarda joylashgan?**

- A) I, III chorakda; B) III, IV chorakda;  
C) II, III chorakda; D) II, IV chorakda.

10. **Funksiyalar grafiklarining kesishish nuqtalari koordinatalarini toping:**  $y = \frac{8}{x}$  va  $y = 2x$ .

- A) (0; 4); B) (0; 4) va (-2; 4);  
C) (2; 4) va (-2; 4); D) (2; 4).

11. **Funksiyalarning qaysi biri juft funksiya:** 1)  $y = x^{-3}$ ;

2)  $y = x^{-6}$ ; 3)  $y = x^{-9}$ ?

- A) 1 va 3; B) 2;  
C) 1; D) 3.

12. **Funksiyalarning qaysi biri toq funksiya:** 1)  $y = x^2 + 8$ ;

2)  $y = x^4 + 4x^2 + 5$ ; 3)  $y = x^7 + 2x^3$ ?

- A) 3; B) 2 va 3;  
C) 1; D) 2.

13. Funksiyaning aniqlanish sohasini toping:  $y = \sqrt[6]{\frac{3x+6}{4-x}}$ .

- A)  $x > 4$ ; B)  $0 \leq x < 4$ ;  
C)  $-2 \leq x < 4$ ; D)  $x \leq -2$ .

14. Tenglamani yeching:  $\sqrt{2x-7} = 3$ .

- A) 16; B) 9;  
C) 7; D) 8.

15. Tenglamani yeching:  $x + \sqrt{2x+3} = 6$ .

- A) 1; B) 3;  
C) 2; D) 4.

16. Tengsizlikni yeching:  $x^3 > 64$ .

- A)  $x > 3$ ; B)  $x > 2$ ;  
C)  $x > 8$ ; D)  $x > 4$ .

17. Tengsizlikni yeching:  $x^4 \leq 81$ .

- A)  $x \leq 3$ ; B)  $x \leq 4$ ;  
C)  $x \leq 9$ ; D)  $x \leq 8$ .

18. Tenglamani yeching:  $\sqrt{11-2x} = x+2$ .

- A) 1; B) 0;  
C) 3; D) 2.

19. Tengsizlikni yeching:  $\sqrt{3x-5} \geq x-3$ .

- A)  $x \geq 7, x \leq \frac{5}{3}$ ; B)  $x \geq 7, x \leq 2$ ;  
C)  $2 \leq x \leq 7$ ; D)  $\frac{5}{3} \leq x \leq 7$ .

20.  $y = \frac{k}{x+2}$  funksiya grafifi  $(-1; 2)$  nuqtadan o'tadi.  $k$  ni toping.

- A) 4; B) 6;  
C) 2; D) 1.

2-variant

1. Funksiya  $y(x) = x^2 + 2x - 3$  formula bilan berilgan.  $y(2)$  ni toping.

- A) 6; B) 5;  
C) 7; D) 4.

2. Funksiya  $y(x) = \frac{x-1}{x+2}$  formula bilan berilgan.  $y(4)$  ni toping.

- A)  $\frac{1}{2}$ ; B) 1; C)  $\frac{2}{3}$ ; D) 2.

3. Funksiyaning aniqlanish sohasini toping:  $y = 3x - 9$ .

- A)  $x > 3$ ; B)  $x$  - istalgan son;  
C)  $x \geq 3$ ; D)  $x \geq -3$ .

4. Funksiyaning aniqlanish sohasini toping:  $y = \sqrt{x+2}$ .

- A)  $x < 2$ ; B)  $x \leq -2$ ;  
C)  $x > 2$ ; D)  $x \geq -2$ .

5. Funksiyaning aniqlanish sohasini toping:

$$y = \sqrt[4]{x^2 - 6x + 5}.$$

- A)  $x \geq 5, x \leq 1$ ; B)  $1 \leq x \leq 7$ ;  
C)  $x \leq 5, x \geq 2$ ; D)  $1 \leq x \leq 5$ .

6. Funksiya juft yoki toq bo'lishini aniqlang:  $y = 4x^5$ .

- A) juft; B) juft ham, toq ham bo'lmaydi;  
C) toq; D) aniqlab bo'lmaydi.

7. Funksiya juft yoki toq bo'lishini aniqlang:  $y = -9x^4$ .

- A) aniqlab bo'lmaydi; B) toq;  
C) juft ham, toq ham bo'lmaydi; D) juft.

8. Agar  $k < 0$  bo'lsa,  $y = \frac{k}{x}$  funksiya grafigi qaysi choraklarda joylashgan?

- A) II, III chorakda; B) I, III chorakda;

C) II, IV chorakda;

D) III, IV chorakda.

9.  $y = \frac{4}{x}$  funksiya grafigi qaysi choraklarda joylashgan?

A) I, III chorakda;

B) II, IV chorakda;

C) III, IV chorakda;

D) I, II chorakda.

10. Funktsiyalar grafiklarining kesisish nuqtalari

koordinatalarini toping:  $y = \frac{27}{x}$  va  $y = 3x$ .

A) (-3; -9);

B) (0; 9) va (0; -9);

C) (3; 9);

D) (3; 9) va (-3; -9).

11. Funktsiyalarning qaysi biri juft funksiya: 1)  $y = x^{-5}$ ;

2)  $y = x^{-7}$ ; 3)  $y = x^{-4}$  ?

A) 2;

B) 1 va 2;

C) 3;

D) 1.

12. Funktsiyalarning qaysi biri toq funksiya:

1)  $y = \frac{1}{6}x^4 - x^2$ ; 2)  $y = x^3 + 6x + 1$ ; 3)  $y = x^3 - 6x$  ?

A) 3;

B) 1;

C) 2;

D) 2 va 3.

13. Funktsiyaning aniqlanish sohasini toping:  $y = \sqrt[6]{\frac{2x+4}{5-2}}$ .

A)  $2 < x < 5$ ;

B)  $x \leq -2, x > 4$ ;

C)  $x \geq -2$ ;

D)  $-2 \leq x < 5$ .

14. Tenglamani yeching:  $\sqrt{3x+7} = 4$ .

A) 11;

B) 3;

C) 7;

D) 4.

15. Tenglamani yeching:  $3 + \sqrt{3x+1} = x$ .

A) 3;

B) 10;

C) 8;

D) 6.

16. Tengsizlikni yeching:  $x^3 < 125$ .

A)  $x < 5$ ;

B)  $x > 5$ ;

C)  $x \leq 5$ ;

D)  $x \geq 3$ .



17. Tengsizlikni yeching:  $x^4 \geq 16$ .

A)  $x \geq -4$ ;

B)  $x \geq 2$ ;

C)  $x \geq -2$ ;

D)  $x \geq 4$ .

18. Tenglamani yeching:  $\sqrt{10+3x} = 6-x$ .

A) 3;

B) 1;

C) 2;

D) 0.

19. Tengsizlikni yeching:  $\sqrt{5x-4} \geq x-2$ .

A)  $\frac{4}{5} \leq x \leq 8$ ;

B)  $x \geq 8, x \geq 1$ ;

C)  $x \geq 8, x \geq \frac{4}{5}$ ;

D)  $1 \leq x \leq 8$ .

20.  $y = \frac{k}{x-3}$  funksiya grafigi (2;3) nuqtadan o'tadi.  $k$  ni toping.

A) 2;

B) -2;

C) -3;

D) 3.



7. Hisoblang:  $\sin \frac{\pi}{2} + 4 \cos \frac{3\pi}{2} + \sqrt{3} \operatorname{tg} \frac{\pi}{6}$ .

- A)  $\frac{1}{2}$ ;      B) 2;      C) 0;      D)  $2\sqrt{3}$ .

8. Agar  $\cos \alpha = 0,8$  va  $\frac{\pi}{2} < \alpha < \pi$  bo'lsa,  $\sin \alpha$  ni toping.

- A)  $-0,8$ ;      B)  $-0,6$ ;  
C)  $0,4$ ;      D)  $0,6$ .

9. Ifodani soddalashtiring:  $2 \sin \alpha - \operatorname{tg} \alpha \cdot \cos \alpha$ .

- A)  $\sin \alpha$ ;      B)  $\cos \alpha$ ;  
C)  $3 \sin \alpha$ ;      D)  $\operatorname{tg} \alpha$ .

10. Ifodani soddalashtiring:  $\sin^2 \alpha + \operatorname{tg}^2 \alpha + \cos^2 \alpha$ .

- A)  $\frac{1}{\sin^2 \alpha}$ ;      B)  $\sin^2 \alpha$ ;  
C)  $\frac{1}{\cos^2 \alpha}$ ;      D)  $\cos^2 \alpha$ .

11. Hisoblang:  $\cos 107^\circ \cos 17^\circ + \sin 107^\circ \sin 17^\circ$ .

- A)  $\frac{\sqrt{3}}{2}$ ;      B) 0;  
C) 1;      D)  $\frac{1}{2}$ .

12. Hisoblang:  $\sin 56^\circ \cos 34^\circ + \cos 56^\circ \sin 34^\circ$ .

- A)  $-1$ ;      B)  $\frac{\sqrt{2}}{2}$ ;  
C) 0;      D) 1.

13. Hisoblang:  $\frac{\operatorname{tg} \frac{2\pi}{3} - \operatorname{tg} \frac{5\pi}{12}}{1 + \operatorname{tg} \frac{2\pi}{3} \operatorname{tg} \frac{5\pi}{12}}$ .

A) 1;

B)  $\sqrt{3}$ ;

C) 0;

D)  $\frac{\sqrt{3}}{3}$ .

14. Ifodani soddallashtiring:  $(\sin \alpha + \cos \alpha)^2 - \sin 2\alpha$ .

A)  $\frac{\sqrt{3}}{2}$ ;

B) 1;

C) 0;

D)  $\frac{1}{2}$ .

15. Ifodani soddallashtiring:  $\frac{1 - \operatorname{tg}(-\alpha)}{\sin \alpha + \cos(-\alpha)}$ .

A)  $\cos \alpha$ ;

B)  $\frac{1}{\sin \alpha}$ ;

C)  $\sin \alpha$ ;

D)  $\frac{1}{\cos \alpha}$ .

16. Hisoblang:  $\sin 240^\circ$ .

A)  $-\frac{\sqrt{2}}{2}$ ;

B)  $\frac{\sqrt{2}}{2}$ ;

C)  $-\frac{\sqrt{3}}{2}$ ;

D)  $\frac{\sqrt{3}}{2}$ .

17. Hisoblang:  $\operatorname{tg} \frac{11\pi}{6}$ .

A)  $-\frac{\sqrt{3}}{3}$ ;

B)  $\sqrt{3}$ ;

C)  $\frac{\sqrt{3}}{3}$ ;

D) 1.





C) 0;

D)  $2 \cos \alpha$ .

**10. Ifodani soddallashtiring:**  $\operatorname{tg} \alpha \cdot \operatorname{ctg} \alpha + \operatorname{ctg}^2 \alpha$ .

A)  $\frac{1}{\cos \alpha}$ ;

B)  $\frac{1}{\sin^2 \alpha}$ ;

C)  $\frac{1}{\sin \alpha}$ ;

D)  $\frac{1}{\cos^2 \alpha}$ .

**11. Hisoblang:**  $\cos 36^\circ \cos 24^\circ - \sin 36^\circ \sin 24^\circ$ .

A)  $\frac{\sqrt{2}}{2}$ ;

B) 0;

C)  $\frac{1}{2}$ ;

D) 1.

**12. Hisoblang:**  $\sin 104^\circ \cos 14^\circ - \cos 104^\circ \sin 14^\circ$ .

A) 0;

B) 1;

C)  $\frac{\sqrt{3}}{2}$ ;

D) -1.

**13. Hisoblang:**  $\frac{\operatorname{tg} \frac{\pi}{10} + \operatorname{tg} \frac{3\pi}{20}}{1 - \operatorname{tg} \frac{\pi}{10} \operatorname{tg} \frac{3\pi}{20}}$ .

A) 0;

B)  $\frac{\sqrt{3}}{3}$ ;

C) 1;

D)  $\sqrt{3}$ .

**14. Ifodani soddallashtiring:**  $\sin 2\alpha + (\sin \alpha - \cos \alpha)^2$ .

A) 1;

B) 0;

C)  $\frac{1}{2}$ ;

D) -1.

**15. Ifodani soddallashtiring:**  $\frac{\operatorname{ctg}(-\alpha) \cdot \sin \alpha}{\cos(-\alpha)}$ .

A)  $\sin \alpha$ ;

B) -1;

C) 0;

D)  $\cos \alpha$ .





## 6-§. PROGRESSIYALAR

6-test ishi

1-variant

1. Quyidagi berilgan ketma-ketliklardan qaysi biri arifmetik progressiya bo'ladi:

1) 2, 6, 8, 12, ... ;

2) 4, 9, 14, 19, ... ;

3) 3, 12, 16, 22, ... ?

A) 3;

B) 2;

C) 1 va 3;

D) 1.

2. Agar  $a_1=4$ ,  $d=3$  bo'lsa, arifmetik progressiyaning to'rtinchi hadini toping.

A) 15;

B) 9;

C) 13;

D) 16.

3. Agar  $a_1 = -6$  va  $d = 2$  bo'lsa, arifmetik progressiyaning  $a_{10}$  ni toping.

A) 16;

B) 12;

C) 24;

D) 6.

4. Arifmetik progressiyada  $a_1=8$ ,  $a_{20}=46$  bo'lsa, uning ayirmasini toping.

A)  $d=3$ ;

B)  $d=1$ ;

C)  $d=4$ ;

D)  $d=2$ .

5. Arifmetik progressiyada  $d=3$ ,  $a_{15}=30$  bo'lsa, uning birinchi hadini toping.

A)  $-12$ ;

B)  $-10$ ;

C) 72;

D) 42.

6. 60 soni 24, 30, 36, ... arifmetik progressiyaning hadi. Shu sonning nomerini toping.

A) 9;

B) 11;

C) 7;

D) 5.

7. 20 soni  $-16$ ,  $-13$ ,  $-10$ , ... arifmetik progressiyaning hadi. Shu sonning nomerini toping.

- A) 13; B) 11;  
C) 12; D) 14.

**8. Agar arifmetik progressiyada  $d=-3$ ,  $a_{10}=60$  bo'lsa, uning birinchi hadini toping.**

- A) 20; B) 78;  
C) 33; D) 87.

**9. Agar arifmetik progressiyada  $a_1=4$ ,  $a_n=32$ ,  $n=40$  bo'lsa, uning dastlabki  $n$  ta hadining yig'indisini toping.**

- A) 720; B) 820;  
C) 740; D) 760.

**10. 2 dan 98 gacha bo'lgan barcha juft sonlar yig'indisini toping (98 ham yig'indiga kiradi).**

- A) 2350; B) 2500;  
C) 2400; D) 2450.

**11. Arifmetik progressiyada  $a_1=-5$ ,  $d=6$ ,  $S_n=1675$  bo'lsa,  $n$  ni toping.**

- A) 35; B) 20;  
C) 30; D) 25.

**12. Quyidagi berilgan ketma-ketliklardan qaysi biri geometrik progressiya bo'ladi:**

- 1) 3, 7, 9, 12, ... ;  
2) 8, 12, 14, 18, ... ;  
3) 2, 6, 18, 54, ... ?

- A) 2; B) 1 va 2;  
C) 1; D) 3.

**13. Agar geometrik progressiyada  $b_1=18$  va  $q=2$  bo'lsa,  $b_4$  ni toping.**

- A) 124; B) 144;  
C) 121; D) 169.

**14. Geometrik progressiyada  $b_1=\frac{1}{8}$ ,  $q=4$  bo'lsa,  $b_5$  ni toping.**

- A) 16; B) 64;

C) 32;

D) 42.

**15. Geometrik progressiya  $n$ -hadining formulasini yozing:**

6, 12, 24, ...

A)  $b_n=6 \cdot 2^{n-1}$ ;

B)  $b_n=4 \cdot 2^{n-1}$ ;

C)  $b_n=2 \cdot 3^{n-1}$ ;

D)  $b_n=3 \cdot 2^{n-1}$ .

**16. Agar geometrik progressiya  $b_1=3$ ,  $b_4=81$  bo'lsa, uning maxrajini toping.**

A) 1;

B) 3;

C) 2;

D) 4.

**17. Agar geometrik progressiyada  $b_1=6$ ,  $b_{10}=3072$  bo'lsa, uning maxrajini toping.**

A) 1;

B) 3;

C) 2;

D) 4.

**18. Agar geometrik progressiyada  $S=49$ ,  $b_1=7$ ,  $q=2$  bo'lsa, uning hadlari soni  $n$  ni toping.**

A) 5;

B) 7;

C) 2;

D) 3.

**19. Cheksiz kamayuvchi geometrik progressiya yig'indisini toping:**

$\frac{2}{3}, \frac{4}{9}, \frac{8}{27}, \dots$

A) 2;

B)  $\frac{1}{2}$ ;

C) 3;

D) 1.

**20. Cheksiz kamayuvchi geometrik progressiya yig'indisini toping:**

$-\frac{1}{2}, \frac{1}{4}, -\frac{1}{8}, \dots$

A) -2;

B) -1;

C)  $-\frac{1}{3}$ ;

D)  $-\frac{1}{2}$ .

## 2-variant

1. Quyidagi berilgan ketma-ketliklardan qaysi biri arifmetik progressiya bo'ladi:

- 1) 3, 5, 7, 9, ... ;
- 2) 1, 4, 12, 18, ... ;
- 3) 2, 6, 8, 10, ... ?

- A) 2;
- B) 2 va 3;
- C) 3;
- D) 1.

2. Agar  $a_1=6$ ,  $d=2$  bo'lsa, arifmetik progressiyaning beshinchi hadini toping.

- A) 14;
- B) 8;
- C) 16;
- D) 12.

3. Agar  $a_1=-7$  va  $d=2$  bo'lsa, arifmetik progressiyaning  $a_8$  ni toping.

- A) -14;
- B) 14;
- C) 7;
- D) -21.

4. Agar arifmetik progressiyada  $a_1=4$ ,  $a_{15}=46$  bo'lsa, uning ayirmasini toping.

- A)  $d=1$ ;
- B)  $d=3$ ;
- C)  $d=2$ ;
- D)  $d=4$ .

5. Arifmetik progressiyada  $d=2$ ,  $a_{20}=40$  bo'lsa, uning birinchi hadini toping.

- A) 2;
- B) 3;
- C) 1;
- D) 4.

6. 67 soni 22, 27, 32, ... arifmetik progressiyaning hadi. Shu sonning nomerini toping.

- A) 8;
- B) 14;
- C) 10;
- D) 12.

7. 10 soni -12, -10, -8, ... arifmetik progressiyaning hadi. Shu sonning nomerini toping.

- A) 13;
- B) 12;
- C) 10;
- D) 11.

8. Agar arifmetik progressiyada  $d=-3$ ,  $a_{10}=40$  bo'lsa, uning birinchi hadini toping.

- A) 67; B) 23;  
C) 57; D) 43.

9. Agar arifmetik progressiyada  $a_1=2$ ,  $a_n=26$ ,  $n=30$  bo'lsa, uning dastlabki  $n$  ta hadining yig'indisini toping.

- A) 360; B) 320;  
C) 420; D) 440.

10. 1 dan 99 gacha bo'lgan barcha toq sonlarning yig'indisini toping (99 ham yig'indiga kiradi).

- A) 2400; B) 2450;  
C) 2300; D) 2500.

11. Arifmetik progressiyada  $a_1=-3$ ,  $d=4$ ,  $S_n=1125$  bo'lsa,  $n$  ni toping

- A) 30; B) 25; C) 15; D) 20.

12. Quyidagi berilgan ketma-ketliklardan qaysi biri geometrik progressiya bo'ladi:

1) 3, 6, 18, 36, ... ;

2) 1, 3, 6, 9, ... ;

3) 4, 8, 16, 32, ... ?

- A) 2; B) 1 va 2; C) 1; D) 3.

13. Agar geometrik progressiyada  $b_1=12$ ,  $q=2$  bo'lsa,  $b_5$  ni toping.

- A) 196; B) 182; C) 192; D) 169.

14. Geometrik progressiyada  $b_1 = \frac{1}{9}$ ,  $q=3$  bo'lsa,  $b_6$  ni toping.

- A) 27; B) 16; C) 64; D) 49.

15. Geometrik progressiya  $n$ -hadining formulasini yozing:

5, 15, 45, ... .

A)  $b_n=3 \cdot 3^{n-1}$ ;

B)  $b_n=5 \cdot 3^{n-1}$ ;

C)  $b_n=5 \cdot 4^{n-1}$ ;

D)  $b_n=5 \cdot 5^{n-1}$ .

16. Agar geometrik progressiyada  $b_1=4$ ,  $b_5=64$  bo'lsa, uning maxrajini toping.

- A) 4;                      B) 1;                      C) 3;                      D) 2.

17. Agar geometrik progressiyada  $b_1=3$ ,  $b_{11}=3072$  bo'lsa, uning maxrajini toping.

- A) 4;                      B) 2;                      C) 3;                      D) 1.

18. Agar geometrik progressiyada  $S=75$ ,  $b_1=5$ ,  $q=2$  bo'lsa, uning hadlari soni  $n$  ni toping.

- A) 5;                      B) 3;                      C) 4;                      D) 2.

19. Cheksiz kamayuvchi geometrik progressiya yig'indisini toping:

$$\frac{2}{5}, \frac{4}{25}, \frac{8}{125}, \dots$$

- A)  $\frac{2}{5}$ ;                      B)  $\frac{2}{3}$ ;                      C)  $\frac{1}{3}$ ;                      D)  $\frac{1}{2}$ .

20. Cheksiz kamayuvchi geometrik progressiya yig'indisini toping:

$$-\frac{1}{3}, \frac{1}{6}, -\frac{1}{12}, \dots$$

- A)  $-\frac{1}{2}$ ;                      B)  $-1$ ;                      C)  $-\frac{1}{3}$ ;                      D)  $-\frac{2}{3}$ .

## 7-§. 9-SINF ALGEBRA KURSINI TAKRORLASH

7-test ishi

1-variant

1. Agar  $x=4$  bo'lsa,  $y=-x^2+3x+10$  kvadrat funksiyaning qiymatini toping.

- A) 12; B) 4;  
C) 6; D) 38.

2. Funktsiyalar grafiklarining kesishish nuqtalari koordinatalarini toping:  $y=x^2-7$  va  $y=2x-7$ .

- A) (0; -7), (2; -3); B) (0; 7), (2; 3);  
C) (0; -7); D) (-2; -3).

3. Parabola uchining koordinatalarini toping:  $y=2x^2+4x-9$ .

- A) (1; -11); B) (-1; -11);  
C) (-1; 11); D) (1; 11).

4. Tengsizlikni yeching:  $3(x-2)(x+2)-3x^2 < x$ .

- A)  $x < -12$ ; B)  $x > 12$ ;  
C)  $x < 12$ ; D)  $x > -12$ .

5. Tengsizlikni yeching:  $(x-2,4)(x+5,3) \geq 0$ .

- A)  $x \geq 2,4$ ,  $x \leq -5,3$ ; B)  $x \leq -5,3$ ;  
C)  $-5,3 \leq x \leq 2,4$ ; D)  $x \geq 2,4$ .

6. Tengsizlikni yeching:  $x^2-10x-24 > 0$ .

- A)  $x > -2$ ; B)  $-2 < x < 12$ ;  
C)  $x > 12$ ,  $x < -2$ ; D)  $x < 12$ .

7. Hisoblang:  $\sqrt{3^3\sqrt{18}} \cdot \sqrt[6]{96}$ .

- A) 12; B) 8;  
C) 18; D) 6.

8. Hisoblang:  $\frac{5^4 \cdot 49^{-3}}{7^{-7} \cdot 25^3}$ .

A)  $\frac{7}{10}$ ;

B)  $\frac{7}{25}$ ;

C)  $\frac{3}{7}$ ;

D)  $\frac{3}{25}$ .

9. Ifodani soddalashtiring:  $(m^{\frac{1}{2}} - 2)(m^{\frac{1}{2}} + 2)(m + 4)$ .

A)  $m^2 - 16$ ;

B)  $m^2 + 4$ ;

C)  $m^2 + 16$ ;

D)  $n^2 - 4$ .

10. Ifodani soddalashtiring:  $\sqrt[3]{2mn^2} \cdot \sqrt[3]{4m^2n}$

A)  $mn$ ;

B)  $2mn$ ;

C)  $3mn$ ;

D)  $\frac{1}{2}mn$ .

11. Tenglamani yeching:  $\sqrt{6-x} = 3$ .

A) 3;

B) -2;

C) -3;

D) 2.

12. Tenglamani yeching:  $3^{5x-3} = 9^x$ .

A)  $\frac{1}{3}$ ;

B) 2;

C) 1;

D)  $\frac{1}{2}$ .

13. Funksiyaning aniqlanish sohasini toping:

$$y = \sqrt{x^2 - 3x + 2}.$$

A)  $-3 \leq x \leq 1$ ;

B)  $x \leq -3, x \geq 1$ ;

C)  $x \geq 3$ ;

D)  $x \leq 1$ .

14.  $y = \frac{k}{x+6}$  funksiya grafigi  $(-3; 4)$  nuqtadan o'tadi.  $k$  ni

toping.

A) -18;

B) -12;

C) 36;

D) 12.



15. **Funksiyalar grafiklari kesishish nuqtalarining koordinatalarini toping:**

$$y = 5x \text{ va } y = \frac{5}{x}.$$

A) (1; 5), (-1; -5);

B) (1; 5);

C) (1; 5), (5; 1);

D) (-1; 5).

16. **Hisoblang:  $\sin 3645^\circ$ .**

A)  $\frac{1}{2}$ ;

B) 1;

C)  $\frac{\sqrt{2}}{2}$ ;

D)  $\frac{\sqrt{3}}{2}$ .

17. **Hisoblang:**

$$\frac{4 - \sin^2\left(-\frac{\pi}{3}\right) - \cos^2\left(-\frac{\pi}{3}\right)}{2\cos\left(-\frac{\pi}{6}\right)}.$$

A)  $2\sqrt{2}$ ;

B)  $\sqrt{3}$ ;

C)  $\sqrt{2}$ ;

D)  $2\sqrt{3}$ .

18. **Agar  $\cos \alpha = -\frac{8}{17}$  va  $\frac{\pi}{2} < \alpha < \pi$  bo'lsa,  $\sin \alpha$  ni toping.**

A)  $\frac{15}{17}$ ;

B)  $\frac{12}{17}$ ;

C)  $\frac{8}{15}$ ;

D)  $-\frac{15}{17}$ .

19.  **$\operatorname{tg} \alpha = -\frac{1}{3}$  va  $\frac{\pi}{2} < \alpha < \pi$  bo'lsa,  $\operatorname{ctg} \alpha$  ni toping.**

A) 0;

B) -1;

C) -3;

D) 2.

20. Ifodani soddalashtiring:  $\frac{\sin^2 \alpha \cdot \operatorname{tg} \alpha + \operatorname{tg} \alpha \cos^2 \alpha}{\sin \alpha \cdot \frac{1}{\operatorname{ctg} \alpha}}$ .

A)  $\sin \alpha$ ;

B) 1;

C)  $\frac{1}{\cos \alpha}$ ;

D)  $\frac{1}{\sin \alpha}$ .

21. Arifmetik progressiyada  $a_1 = -3$ ,  $d = -2$  bo'lsa,  $a_{30}$  ni toping.

A) 61;

B) -61;

C) -55;

D) 58.

22. Arifmetik progressiyada  $a_1 = -4$ ,  $d = 3$  bo'lsa, uning dastlabki o'n ikkita hadi yig'indisini toping.

A) 200;

B) 350;

C) 250;

D) 300.

23. Geometrik progressiyada  $b_1 = 8$  va  $q = 2$  bo'lsa,  $b_5$  ni toping.

A) 122;

B) 118;

C) 128;

D) 112.

24. Geometrik progressiyada  $b_1 = 4$ ,  $q = 2$ ,  $n = 6$  bo'lsa, uning dastlabki  $n$  ta hadining yig'indisini toping.

A) 252;

B) 242;

C) 262;

D) 232.

25. Agar cheksiz kamayuvchi geometrik progressiyada  $b_1 = -2$  va  $q = \frac{1}{2}$  bo'lsa, uning yig'indisini toping.

A) 6;

B) -4;

C) 4;

D) -6.

## 2-variant

1. Agar  $x=3$  bo'lsa,  $y=-x^2+4x-21$  kvadrat funksiyaning qiymatini toping.

- A) -32; B) -18;  
C) -42; D) -12.

2. Funktsiyalar grafiklarining kesishish nuqtalari koordinatalarini toping:  $y=x^2+9$  va  $y=3x+9$ .

- A) (0; 18), (3; 9); B) (0; 9);  
C) (9; 18); D) (0; 9), (3; 18).

3. Parabola uchining koordinatalarini toping:  $y=2x^2-8x+10$ .

- A) (-2; 2); B) (2; 2);  
C) (2; -2); D) (-2; -2).

4. Tengsizlikni yeching:  $4(x-3)(x+3)-x > 4x^2$ .

- A)  $x > 36$ ; B)  $x < -36$ ;  
C)  $x > -36$ ; D)  $x < 36$ .

5. Tengsizlikni yeching:  $(x+3,2)(x-1,7) \leq 0$ .

- A)  $x \leq -3,2$ ,  $x \geq 1,7$ ; B)  $-3,2 \leq x \leq 1,7$ ;  
C)  $x \geq 1,7$ ; D)  $x \leq -3,2$ .

6. Tengsizlikni yeching:  $x^2-12x+20 < 0$ .

- A)  $2 < x < 10$ ; B)  $x > 10$ ,  $x < 2$ ;  
C)  $x < 10$ ; D)  $x > 2$ .

7. Hisoblang:  $\sqrt{5^3\sqrt{50}} \cdot \sqrt[6]{160}$ .

- A) 20; B) 10;  
C) 5; D) 15.

8. Hisoblang:  $\frac{81^3 \cdot 10^{-6}}{10^{-5} \cdot 27^4}$ .

- A)  $\frac{5}{6}$ ; B)  $\frac{3}{10}$ ;

C)  $\frac{1}{10}$ ;

D)  $\frac{1}{6}$ .

9. Ifodani soddalashtiring:  $\left(3 + n^{\frac{1}{2}}\right)\left(n^{\frac{1}{2}} - 3\right)(n + 9)$ .

A)  $n^2 + 9$ ;

B)  $n^2 + 81$ ;

C)  $n^2 - 9$ ;

D)  $n^2 - 81$ .

10. Ifodani soddalashtiring:  $\sqrt[3]{3m^4n} \cdot \sqrt[3]{9m^2n^2}$ .

A)  $3m^2n$ ;

B)  $m^2n$ ;

C)  $2mn$ ;

D)  $3mn$ .

11. Tenglamani yeching:  $\sqrt{3-x} = 2$ .

A)  $-2$ ;

B)  $2$ ;

C)  $1$ ;

D)  $-1$ .

12. Tenglamani yeching:  $5^{4x-6} = 25^x$ .

A)  $1$ ;

B)  $3$ ;

C)  $2$ ;

D)  $4$ .

13. Funksiyaning aniqlanish sohasini toping:

$$y = \sqrt{x^2 + 2x - 3}$$

A)  $x \leq -3, x \geq 1$ ;

B)  $x \geq -3$ ;

C)  $x \leq 1$ ;

D)  $-3 \leq x \leq 1$ .

14.  $y = \frac{k}{x-5}$  funksiya grafigi  $(2; -3)$  nuqtadan o'tadi.  $k$  ni toping.

A)  $9$ ;

B)  $-21$ ;

C)  $-9$ ;

D)  $21$ .

15. Funksiyalar grafiglari kesishish nuqtalarining

koordinatalarini toping:  $y = 7x$  va  $y = \frac{7}{x}$ .

A)  $(1; 7), (-1; -7)$ ;

B)  $(0; 1), (1; -7)$ ;

C)  $(0; 7), (0; -7)$ ;

D)  $(1; -1), (7; -7)$ .

16. Hisoblang:  $3660^\circ$ .

A)  $\frac{\sqrt{2}}{2}$ ;

B) 1;

C)  $\frac{\sqrt{3}}{2}$ ;

D)  $\frac{1}{2}$ .

17. Hisoblang:  $\frac{3 - \sin^2(-\frac{\pi}{4}) - \cos^2(-\frac{\pi}{4})}{2 \sin \frac{\pi}{4}}$ .

A)  $\sqrt{2}$ ;

B)  $2\sqrt{3}$ ;

C)  $\sqrt{3}$ ;

D)  $\frac{\sqrt{3}}{2}$ .

18. Agar  $\sin \alpha = \frac{12}{13}$  va  $0 < \alpha < \frac{\pi}{2}$  bo'lsa,  $\cos \alpha$  ni toping.

A)  $-\frac{9}{13}$ ;

B)  $\frac{13}{12}$ ;

C)  $\frac{5}{13}$ ;

D)  $-\frac{5}{13}$ .

19. Agar  $\operatorname{ctg} \alpha = -\frac{4}{3}$  va  $\frac{3\pi}{2} < \alpha < 2\pi$  bo'lsa,  $\operatorname{tg} \alpha$  ni toping.

A)  $\frac{1}{4}$ ;

B)  $-\frac{3}{4}$ ;

C)  $\frac{3}{4}$ ;

D)  $-\frac{1}{4}$ .

20. Ifodani soddalashtiring:  $\frac{\cos^2 \alpha \cdot \operatorname{ctg} \alpha + \operatorname{ctg} \alpha \cdot \sin^2 \alpha}{\frac{1}{\operatorname{tg} \alpha} \cdot \cos \alpha}$ .



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Ilmiy-uslubiy nashr

Sirojiddin TURDALIYEV  
Hamidullo HAMROQULOV

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