19-Mavzu. Progressiyalar

1. Qaysi javobda arifmetik progressiya berilgan?
A) $0; 1; 3; 9$ B) $1; 2; 3; 5$ C) $1; 4; 7; 10$ D) $2; 4; 8; 16$

2. Qaysi javobda geometrik progressiya berilgan?
A) $-\frac{1}{3}; 1; -3; 9$ B) $-\frac{1}{3}; -1; 3; 9$ C) $-\frac{1}{3}; 1; 3; 9$ D) $-\frac{1}{3}; 1; 3; -9$

3. Dastlabki bir nechta hadi berilgan arifmetik progressiyaning ayirmasini toping: $-\frac{3}{5}; -\frac{4}{5}; -1; -\frac{6}{5}; \ldots$
A) 0,4 B) 0,2 C) –0,2 D) –0,4

4. Dastlabki bir nechta hadi berilgan geometrik progressiyaning maxrajini toping: $\frac{\sqrt{3}\cdot 5^4}{4}; \frac{\sqrt{3}\cdot 5^5}{4}; \frac{\sqrt{3}\cdot 5^6}{4}; \frac{\sqrt{3}\cdot 5^7}{4}; \ldots$
A) 4 B) 5 C) $\frac{\sqrt{3}}{4}$ D) $\frac{1}{4}$

5. Dastlabki bir nechta hadi berilgan geometrik progressiyaning maxrajini toping: 8; 12; 18; 27; …
A) 1,5 yoki $\frac{2}{3}$ B) $\frac{2}{3}$ C) 1,5 D) aniqlab bo‘lmaydi.

6. $a_n = -\frac{n+2}{5}$ formula bilan berilgan arifmetik progressiyaning ayirmasini toping.
A) 0,4 B) 0,2 C) –0,2 D) –0,4

7. $b_n = \frac{\sqrt{3}}{4} \cdot 5^{n+3}$ formula bilan berilgan geometrik progressiyaning maxrajini toping.
A) 4 B) 5 C) $\frac{\sqrt{3}}{4}$ D) $\frac{1}{4}$

8. Agar a_n ketma-ketlik uchun $a_n = 2n^2 - n - 3$ bo‘lsa, $a_4 - a_3$ ni toping.
A) 25 B) 15 C) 13 D) 6

9. Arifmetik progressiyada $a_1 = 13$ va $a_2 = 9$. Uning beshinchi hadini toping.
A) -3 B) -2 C) 1 D) 2

10. Arifmetik progressiyada $c_3 = 5$ va $c_7 = 11$. Uning ayirmasini toping.
A) 1,2 B) 1,3 C) 1,4 D) 1,5

11. $\{u_n\}$ arifmetik progressiya ayirmasi 2 ga teng bo‘lib, $u_1 = 3$ berilgan. u_{10} ni toping.
A) 19 B) 21 C) 23 D) 25

12. Geometrik progressiya uchun $b_1 = -18$, $b_2 = 6$. Uning to‘rtinchi hadini toping.
A) -1 B) $-\frac{2}{3}$ C) $\frac{2}{3}$ D) 1

13. Geometrik progressiyada $b_{10} = 10, b_{12} = 40$. Uning maxraji qabul qilishi mumkin bo‘lgan barcha qiymatlarini toping.
A) -4 va 4 B) 4 C) 2 D) -2 va 2

14. O‘suvchi geometrik progressiya uchun $b_1+b_4=27$ va $b_2+b_3=18$ bo‘lsa, uning maxrajini toping.
A) 2 B) 3 C) 1,5 D) 2,5

15. Geometrik progressiyada $b_1 = 2, b_2 = 4$. Uning 113-hadi oxirgi raqamini toping.
A) 2 B) 4 C) 6 D) 8

16. Arifmetik progressiyada $a_5 = 18$, $a_{21} = -6$. $a_2 + a_{24}$ ni toping.
A) 6 B) 26 C) 24 D) 12

17. Geometrik progressiyada $b_1 = 8, b_{22} = -4$. $b_7 \cdot b_{16}$ ni toping.
A) 24 B) -24 C) 32 D) -32

18. $2k+3$, $7k+5$ va $k-4$ arifmetik progressiyaning ketma-ket hadlari bo‘lsa, k=?
A) –8 B) –3 C) –1 D) 7

19. $11 - 2a; 2a + 1; 3a + 15$ sonlar ketma-ketligi geometrik progressiya tashkil etuvchi a ning barcha qiymatlari yig‘indisini toping.
A) -1 B) $-0,5$ C) $-1,5$ D) $-0,1$

20. $\sqrt{4a+1}; \sqrt{7a+2}; \sqrt{12a+1}$; ... lar ko‘rsatilgan tartibda arifmetik progressiya tashkil etadi. a ning barcha qiymatlarini toping.
A) 2 B) $2;-\frac{1}{3}$ C) $2;\frac{1}{3}$ D) $2;\frac{8}{15}$

21. Arifmetik progressiyada $a_{m+n}=x$, $a_{m-n}=y$ $(m>n)$ bo‘lsa, a_m ni toping.
A) xy B) $\frac{x-y}{2}$ C) $\frac{x+y}{2}$ D) $x+y$

22. a, b, c, d sonlari geometrik progressiya tashkil etadi.
$(a-c)^2+(b-c)^2+(b-d)^2-(a-d)^2$ ni toping.
A) ad B) bc C) 0 D) $a^2+b^2+c^2+d^2$

23. $b_1, b_2, \ldots, b_9$ geometrik progressiya hadlari bo‘lsa,
$(b_4+b_5+b_6)^2-(b_1+b_2+b_3)(b_7+b_8+b_9)$ ni toping.
A) q B) b_1 C) b_1^2 D) 0

24. Arifmetik progressiyada $a_5=81\frac{2}{11}, a_{11}=118\frac{9}{11}$ bo‘lsa, a_8 =?
A) 100 B) 99 C) 98 D) 101

25. Arifmetik progressiyada $a_7+a_{13}=34$ va $a_5+a_7=18$ bo‘lsa, a_{19} ni toping.
A) 33 B) 35 C) 37 D) 39

26. $8\frac{1}{2}; 8\frac{1}{3}; \ldots$ arifmetik progressiyaning eng katta manfiy hadini toping.
A) $-\frac{1}{3}$ B) $-\frac{1}{4}$ C) $-\frac{1}{5}$ D) $-\frac{1}{6}$

27. $\frac{1}{4}; \frac{1}{5}; \ldots$ arifmetik progressiyaning nechta hadi musbat bo‘ladi?
A) 4 B) 5 C) 6 D) 7

28. 9;13;17;… arifmetik progressiyaning nechta hadi uch xonali son bo‘ladi?
A) 248 B) 226 C) 225 D) 224

29. $3^{50}; 3^{48}; 3^{46}\ldots$ geometrik progressiyaning nechanchi hadidan boshlab, uning hadlari 1 dan kichik sonlar bo‘ladi?
A) 25 B) 26 C) 27 D) 28

30. Nechanchi hadidan boshlab 9; 3; 1; … geometrik progressiyaning hadlari 0,001 dan kichik bo‘ladi?
A) 9 B) 10 C) 11 D) 12

31. Arifmetik progressiyada $\frac{a_{170}}{a_2}=15$ bo‘lsa, $\frac{a_{14}}{a_2}$ ni toping.
A) 2 B) 3 C) 4 D) 5

32. a_n- arifmetik progressiyaning *n*-hadi. Quyidagilarning qaysi biri har doim arifmetik progressiya bo‘la olmaydi?
1) $a_2; a_6; a_{10}; \ldots$; 2) $2(a_1+1); 2(a_2+1); \ldots$;
3) $a_1+a_2; a_2+a_3; \ldots$; 4) $a_1^2; a_2^2; a_3^2; \ldots$
A) 2 B) 4 C) 3 D) 1

33. Arifmetik progressiyada a_1=7 va d=5 bo‘lsa,
$a_1-a_2+a_3-a_4+a_5-a_6+\cdots+a_{29}-a_{30+}a_{31}$ ni toping.
A) 80 B) 81 C) 82 D) 83

34. Beshta a_1, a_2, a_3, a_4, a_5 tub sonlar ayirmasi 6 ga teng bo‘lgan arifmetik progressiyani tashkil qiladi. $2a_2+a_3$ ni toping.
A) 31 B) 39 C) 40 D) 43

35. x^2–4x+a=0 tenglama ildizlari x_1 va x_2, x^2–12x+b=0 tenglama ildizlari esa x_3 va x_4 bo‘lib, x_1, x_2, x_3, x_4 sonlar arifmetik progressiyani tashkil qilsa, a ni toping.
A) 3 B) 4 C) 5 D) 6

36. x^2–7x+a=0 tenglama ildizlari x_1 va x_2, x^2–19x+b=0 tenglama ildizlari esa x_3 va x_4 bo‘lib, x_1, x_2, x_3, x_4 sonlar arifmetik progressiyani tashkil qilsa, b ni toping.
A) 84 B) 86 C) 88 D) 90

37. 1; 3; 7; 15; … ketma-ketlikning 100-hadini toping.
A) $2^{100}+1$ B) $2^{100}-1$ C) $2^{101}-1$ D) $2^{101}+1$

38. 5; 8; 14; 26; … ketma-ketlikning *n*-hadi berilgan javobni toping.
A) $1{,}5\cdot 2^n+4$ B) $1{,}5\cdot 2^n-2$ C) $1{,}5\cdot 2^n+4$ D) $1{,}5\cdot 2^n+2$

39. 5;8;11;… va 4;9;14… arifmetik progressiyalarning nechta umumiy hadi 300 dan kichik bo‘ladi?
A) 19 B) 20 C) 21 D) 22

40. Agar $a_1; a_2; a_3;\ldots$ sonlar arifmetik progressiya tashkil etsa,
$\frac{1}{a_1a_2a_3}+\frac{1}{a_2a_3a_4}+\frac{1}{a_3a_4a_5}+\cdots\frac{1}{a_{18}a_{19}a_{20}}$ yig‘indini toping.
A) $\frac{18a_1+171d}{a_1a_2a_{19}a_{20}}$ B) $\frac{36a_1+342d}{a_1a_2a_{19}a_{20}}$ C) $\frac{a_1+19d}{a_1a_2}$ D) $\frac{1}{a_1a_2a_{19}a_{20}}$

Kalitlar

1.	C	16.	D	31.	A
2.	A	17.	D	32.	B
3.	C	18.	C	33.	C
4.	B	19.	D	34.	B
5.	C	20.	A	35.	A
6.	C	21.	C	36.	C
7.	B	22.	C	37.	B
8.	C	23.	D	38.	D
9.	A	24.	A	39.	B
10.	D	25.	B	40.	A
11.	B	26.	D		
12.	C	27.	B		
13.	D	28.	C		
14.	A	29.	C		
15.	A	30.	B		