Test

1.

Darajasi $\leq n$ bo'lgan $P(x)$ ko'phad uchun
$P(1) = P(2) = \ldots = P(n+1) = 0$ bo'lsa, qaysi xulosa to'g'ri?

A) $P(x)$ noldan farq qiladi
B) $P(x)$ identik nol
C) $P(x) = x$
D) $P(x)$ doimiy

2.

Quyidagilardan qaysi shart $P(x)$ ning **juft ko'phad** ekanini kafolatlaydi?

A) $P(x) = P(x-1)$
B) $P(x) = P(-x)$
C) $P(x) + P(-x) = 0$
D) $P(x) = -P(x)$

3.

Butun koeffitsiyentli ko'phad ratsional ildizga ega emasligini ko'rsatish uchun eng qulay usul:

A) Hosila
B) Interpolatsiya
C) Gauss teoremasi
D) Simpson formulasi

4.

Agar $P(x)$ darajasi 5 va
$P(-2) = P(-1) = P(0) = P(1) = P(2) = 0$ bo'lsa, qaysi xulosa – to'g'ri?

A) $P(x) \equiv 0$
B) $P(x) = x^5$
C) $P(x) = (x+2)(x+1)x(x-1)(x-2)$
D) $P(x)$ darajasi 4

5.

Qaysi holatda ko'phad majburiy o'zgarmas bo'ladi?

A) $P(x) = P(-x)$
B) $P(x + 1) = P(x)$
C) $P'(x) = 0$ faqat bitta nuqtada
D) $P(0) = 1$

6.

$P(x) = a_0 + a_1x + \ldots + a_nx^n, |a_i| \leq 1$ bo'lsa, qaysi baho to'g'ri?

A) $|P(1)| \leq 1$
B) $|P(1)| \leq n$
C) $|P(1)| \leq n + 1$
D) $|P(1)| \leq 2^n$

7.

Agar $P(x)$ barcha x uchun
$$P(x) = P(2 - x)$$
bo'lsa, invariant ifoda qaysi?

A) $x + 2$
B) $x - 1$
C) $x(2 - x)$
D) $(x - 2)^2$

8.

Darajasi ≤ 4 bo'lgan $P(x)$ uchun
$$P(0) = P(1) = P(2) = P(3) = P(4)$$
bo'lsa, qaysi xulosa to'g'ri?

A) $P(x) = x^4$
B) $P(x) = const$

C) $P(x) = x^2$
D) bunday ko'phad yo'q

9.

Quyidagilardan qaysi biri interpolatsiya g'oyasining to'g'ri ifodasi?

A) Ko'phad har doim cheksiz
B) $n + 1$ nuqta ko'phadni aniqlaydi
C) Har funksiya ko'phad
D) Har ko'phad tub

10.

Agar $P(x)$ ning barcha koeffitsiyentlari musbat bo'lsa, qaysi xulosa to'g'ri?

A) $P(x) = 0$ haqiqiy ildizga ega
B) $P(x) > 0$ barcha $x > 0$ uchun
C) $P(x) < 0$ barcha x uchun
D) $P(0) = 0$

11.

Agar $P(x)$ darajasi n va
$$P(0) = P(1) = \ldots = P(n) = 0$$
bo'lsa, qaysi qiymat majburiy nol?

A) $P(n + 1)$
B) $P(-1)$
C) $P(x) \equiv 0$
D) $P'(x)$

12.

Qaysi funksiya tenglamasi $f(x)$ ni ko'phad bo'lishga majbur qiladi?

A) $f(x + y) = f(x)f(y)$
B) $f(x + 1) - f(x) = 2x$

C) $f(x) = \sin x$
D) $f(x + y) = f(x) + f(y)$

13.

Agar $P(x)$ juft ko'phad bo'lsa, qaysi hadlar mavjud bo'lmaydi?

A) x^2, x^4
B) x^3, x^5
C) konstanta
D) x^0

14.

$P(x)$ ning darajasi 6. Agar $P(x)$ 7 ta turli ildizga ega bo'lsa, qaysi xulosa to'g'ri?

A) $P(x) = x^7$
B) $P(x) \equiv 0$
C) imkonsiz
D) P darajasi 7

15.

Quyidagilardan qaysi biri Viyet formulalariga tegishli?

A) Hosila
B) Ildizlar ko'paytmasi
C) Graflar
D) Integral

16.

Agar $P(x) = P(-x)$ va $P'(x) = 0$ barcha x uchun bo'lsa, $P(x)$ qanday?

A) Kubik
B) Kvadratik
C) Chiziqli
D) Doimiy

17.

Qaysi ko'phad barcha butun x lar uchun butun qiymat beradi?

A) $x/2$
B) $x(x-1)/2$
C) $\sqrt{x}$
D) $1/x$

18.

Agar $P(x)$ darajasi 3 va $P(0) = P(1) = P(2) = P(3)$ bo'lsa, qaysi xulosa to'g'ri?

A) $P(x) = x^3$
B) $P(x)$=doimiy
C) $P(x) = x^2$
D) imkonsiz

19.

Qaysi usul ko'phadning mavjud emasligini tez ko'rsatadi?

A) Farq ko'phadi
B) Simpson qoidasi
C) Trigonometriya
D) Integral

20.

Olimpiada masalalarida ko'phadlar ko'pincha qaysi mavzu bilan birga keladi?

A) Statistikalar
B) Invariant va ekstremal
C) Limitlar
D) Logarifmlar

TO'G'RI JAVOBLAR (ALOHIDA)

1. **B**
2. **B**
3. **C**
4. **C**
5. **B**
6. **C**
7. **C**
8. **B**
9. **B**
10. **B**
11. **C**
12. **B**
13. **B**
14. **C**
15. **B**
16. **D**
17. **B**
18. **B**
19. **A**
20. **B**