## 30-Mavzu. Trigonometriya

**1.** Qiymati 153° bo‘lgan burchakning radian o‘lchovini toping.
A) $\frac{17\pi}{20}$ B) $\frac{153}{\pi}$ C) $\frac{2\pi}{9}$ D) $\frac{6\pi}{7}$

**2.** Qiymati $\frac{5\pi}{3}$ radian bo‘lgan burchakning gradus o‘lchovini toping.
A) $150°$ B) $180°$ C) $300°$ D) $330°$

**3.** P(0;2) nuqta koordinata boshi atrofida 270° ga burilsa, qanday nuqtaga o‘tadi?
A) (0;–2) B) (–2;0) C) (2;0) D) (0;2)

**4.** P(–3;0) nuqtani koordinata boshi atrofida 90° ga burganda hosil bo‘ladigan nuqtaning koordinatalarini toping.
A) (0;–3) B) (3;0) C) (0;3) D) (–3;0)

**5.** sin100°, cos150°, tg200°, ctg100° ning ishoralari.
A) +,–,–,– B) –,–,+,+ C)+,–,–,+ D) +,–,+,–

**6.** Qaysi ifodaning qiymati musbat son?
A) cos87°– cos77° B) $\text{tg}2 - \text{tg}3$ C) $\sin 2 - \sin 3$ D) $\sin 12° - \text{tg}12°$

**7.** $cos\,\alpha < 0, tg\alpha < 0$ bo‘lsa, $\alpha$ burchak qaysi chorakda joylashgan?
A) $I$ B) $II$ C) $III$ D) $IV$

**8.** Ifodaning qiymatini toping: 5sin90°–2cos0°–2sin270°+cos180°
A) 10 B) 4 C) 0 D)8

**9.** Ifodaning qiymatini toping: cos0°–sin90°+ctg(–270°)+tg(–225°)
A) 1 B) –1 C) 0 D) –2

**10.** Hisoblang: $3tg0° + 2cos\,90° + 3sin\,270° - 3cos\,180°$
A) 6 B) 0 D) –6 D) 9

**11.** Hisoblang: $sin\left(-\frac{13\pi}{6}\right) + 2cos\frac{17\pi}{6} + tg\frac{22\pi}{3} - ctg\frac{37\pi}{4}$
A) $-\frac{1}{2}$ B) $-\frac{3}{2}$ C) $\frac{1}{2}$ D) $\frac{3}{2}$

**12.** $sin\left((-1)^n\frac{\pi}{2}\right)cos((-1)^n\pi) - (-1)^n$ ni soddalashtiring. $(n \in Z)$
A) $2(-1)^n$ B) $2(-1)^{n+1}$ C) $(-1)^n$ D) $(-1)^{n+1}$

**13.** sin20°, sin5°, sin190°, sin280°, sin140° sonlardan eng kattasini aniqlang.
A) sin20° B) sin5° C) sin280° D) sin140°

**14.** $m$=cos65°, $n$=sin45°, $q$=sin50° va $p$= cos80° sonlarini o‘sish tartibida yozing.
A) $m<n<p<q$ B) $p<m<n<q$ C) $p<m<q<n$ D) $q<n<p<m$

**15.** M=sin82°, N=ctg186°sin6° va Q=cos220° sonlarini kamayish tartibida yozing.
A) N>M>Q B) N>Q>M C) M>N>Q D) Q>M>N

**16.** 90°<$x$<$y$<180° bo‘lsa, quyidagilardan qaysi biri o‘rinli?
A) cos$x$<cos$y$ B) tg$x$<tg$y$ C) sin$x$<sin$y$ D) sin$x$<cos$y$

**17.** Hisoblang: $\frac{1}{1-2\cos 30^\circ}+\frac{1}{1+2\sin 60^\circ}$
A) 1 B) –1 C) aniqlanmagan D) 2

**18.** Ushbu $2\sin\alpha+3$ ifodaning eng kichik qiymatini toping.
A) $-2$ B) $-1$ C) 1 D) 5

**19.** Ushbu $f(x)$ = 5sin$x$+6 funksiyaning eng katta qiymatini toping.
A) –1 B) 11 C) 1 D) 6

**20.** Ushbu $f(x)$= –3sin$x$+9 funksiyaning eng katta qiymatini toping.
A) –1 B) 6 C) 12 D) 7

**21.** Javoblar orasidan eng kata son berilgan javobni toping.
A) $\cos 2$ B) $\cos 3$ C) $\cos 4$ D) $\cos 5$

**22.** $y=4\ln e-3^{|\sin x|}$ funksiyaning eng kichik qiymatini toping.
A) 3 B) 1 C) 0 D) 4

**23.** $y=\frac{0{,}5}{1+\sin x}$ funksiyaning $x\in\left[\frac{\pi}{6};\frac{5\pi}{6}\right]$ oraliqdagi eng katta qiymatini toping.
A) 100 B) $\frac{1}{4}$ C) $\frac{1}{3}$ D) 1

**24.** $\frac{2\sin\alpha-1}{5-2\sin\beta}+\frac{tg^2\gamma+ctg^2\gamma}{2}$ ning eng kichik qiymatini toping.
A) –1 B) 1 C) 0 D) $\frac{4}{7}$

**25.** Soddalashtiring: $\left(\frac{1}{\sin^2\alpha}-1\right)\cdot\left(\frac{1}{\cos^2\alpha}-1\right)$
A) –1 B) 1 C) 2 D) 0

**26.** Ifodani soddalashtiring: $\frac{cos^2 x}{1+sin x} + sin x$

A) 1 B) 2 C) 0,5 D) 0

**27.** Ifodani soddalashtiring: $\frac{1-sin^2 \alpha}{1-cos^2 \alpha} + tg\alpha \cdot ctg\alpha$

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

**28.** Agar $sin x = \frac{1}{2}$ bo‘lsa, $6{,}8 + 2\,cos^2 x$ ifodaning qiymatini toping.

A) 6,8 B) 7,8 C) 9,3 D) 8,3

**29.** Ifodani soddalashtiring: $cos^4 \alpha + sin^2 \alpha \cdot cos^2 \alpha$

A) $cos\, 2\alpha$ B) $2\, sin^2 \alpha$ C) $cos^2 \alpha$ D) $cos^4 \alpha$

**30.** Agar: $\sin\alpha+\cos\alpha=\frac{5}{7}$ bo‘lsa, $tg\alpha \cdot \cos^2\alpha$ ni toping.

A) $-\frac{24}{49}$ B) $\frac{25}{49}$ C) $-\frac{25}{49}$ D) $-\frac{12}{49}$

**31.** Soddalashtiring: $\cos^2\alpha + cos^2 \beta - \cos^2\alpha \cdot cos^2 \beta + sin^2 \alpha \cdot sin^2 \beta$

A) 1 B) 0 C) –1 D) –2

**32.** Soddalashtiring: $\sin^2\alpha + sin^2 \beta - \sin^2\alpha \cdot sin^2 \beta + cos^2 \alpha \cdot cos^2 \beta$

A) 1 B) 0 C) –1 D) –2

**33.** $\frac{sin^4 \alpha+cos^4 \alpha-1}{sin^6 \alpha+cos^6 \alpha-1}$ ni soddalashtiring.

A) $tg^4\alpha$ B) 1 C) $\frac{2}{3}$ D) $tg^2\alpha$

**34.** $sin x + \frac{1}{sin x} = 5$ bo‘lsa, $sin^2 x + \frac{1}{sin^2 x}$ ni toping.

A) 25 B) 24 C) 23 D) 22

**35.** $\frac{sin^2 \alpha-sin^2 \beta}{cos^2 \alpha-cos^2 \beta}$ ni soddalashtiring.

A) 1 B) 2 C) –1 D) –2

**36.** Soddalashtiring: $\frac{3\,sin^2 x+cos^4 x}{1+sin^2 x+sin^4 x}$

A) 2sin$x$ B) 2 C) ctg$^2x$ D) 1

**37.** Soddalashtiring: $\frac{1+cos^2 x+cos^4 x}{3\,cos^2 x+sin^4 x}$

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

**38.** Agar $\cos\alpha=\frac{\sqrt{5}}{3}$; $\frac{3\pi}{2}<\alpha<2\pi$ bo‘lsa, $tg(360°+\alpha)$ ni toping.

A) $-\frac{\sqrt{5}}{3}$ B) $\frac{\sqrt{5}}{3}$ C) $\frac{2}{3}$ D) $-\frac{2}{\sqrt{5}}$

**39.** $cos\frac{11\pi}{3}=?$

A) $\frac{1}{2}$ B) $\frac{3}{5}$ C) $\frac{3}{4}$ D) $\frac{4}{5}$

**40.** Hisoblang: $\sin690°\cdot ctg1200°-\frac{1}{2}\,tg750°$

A) 0 B) 1 C) –1 D) $-\frac{1}{2}$

**41.** Hisoblang: $ctg5°\cdot ctg10°\cdot ctg15°\cdot\ldots\cdot ctg85°$

A) 0 B) 1 C) $\sqrt{3}$ D) hisoblab bo‘lmaydi

**42.** Hisoblang: $sin330°cos420°-tg315°ctg225°$

A) $\frac{3}{4}$ B) $\frac{5}{4}$ C) $\frac{1}{2}$ D) $\frac{1}{4}$

**43.** Hisoblang: $2^{cos\,61°}\cdot 2^{cos\,62°}\cdot 2^{cos\,63°}\cdot\ldots\cdot 2^{cos\,120°}$

A) $\frac{1}{2}$ B) $\sqrt{2}$ C) $\frac{1}{\sqrt{2}}$ D) 2

**44.** Hisoblang: $\lg tg22^0+\lg tg68^0+\lg\sin90^0$

A) 0,5 B) 1 C) 0 D)0,6

**45.** Hisoblang: $\sin2°+\sin3°+\sin4°+\ldots+\sin358°$

A) 0 B) 1 C) –1 D) $\sin179^o$

**46.** Hisoblang: $\cos1°+\cos2°+\cos3°+\ldots+\cos179°$

A) 1 B) –1 C) 0 D) $\cos89^o$

**47.** Hisoblang: $\sin1°+\sin2°+\sin3°+\ldots+\sin359°$

A) 1 B) –1 C) 0 D) $\sin179^o$

**48.** Hisoblang: $ctg15°+ctg30°+ctg45°+\ldots+ctg165°$

A) 0 B) $ctg89°$ C) –1 D) 1

**49.** Hisoblang: $tg20^\circ + tg40^\circ + tg60^\circ + \ldots + tg160^\circ$

A) 0 B) $ctg89^\circ$ C) –1 D) 1

**50.** Ifodani soddalashtiring : $\frac{sin38^\circ \cdot cos12^\circ + cos(-38^\circ) \cdot sin12^\circ}{cos40^\circ \cdot cos10^\circ + sin(-40^\circ) \cdot sin10^\circ}$

A) ctg50° B) tg50° C) –ctg40° D) –tg50°

# Kalitlar

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|---|---|---|---|---|---|---|---|
| 1. | A | 16. | B | 31. | A | 46. | C |
| 2. | C | 17. | B | 32. | A | 47. | C |
| 3. | C | 18. | C | 33. | C | 48. | A |
| 4. | A | 19. | B | 34. | C | 49. | A |
| 5. | D | 20. | C | 35. | C | 50. | B |
| 6. | C | 21. | D | 36. | D | | |
| 7. | C | 22. | B | 37. | D | | |
| 8. | B | 23. | C | 38. | D | | |
| 9. | B | 24. | C | 39. | A | | |
| 10. | B | 25. | B | 40. | A | | |
| 11. | B | 26. | A | 41. | B | | |
| 12. | B | 27. | C | 42. | A | | |
| 13. | D | 28. | D | 43. | C | | |
| 14. | B | 29. | C | 44. | C | | |
| 15. | A | 30. | D | 45. | A | | |