**27 -мавзу: Ikkinchi tartibli sirtlar. Aylanma sirtlar. Silindrik sirt va uning turlari. Konus sirt. Konus kesimlari.**

Darsda yechiladigan misollar

Masala 13 $x=z$ to’g’ri chiziqni $Oz$ uni atrofiga aylanishdan hosil bo’lgan sirt tenglamasini yozing va turini aniqlang

Masala.14 $\frac{x^{2}}{a^{2}}-\frac{z^{2}}{c^{2}}=2$ giperbolani $Ox$ va $Oz$ o’qlari atrofida aylanishidan hosil bo’lgan sirtlar tenglamalarini yozing.

Masala1. $4x^{2}+4y^{2}+4z^{2}-4x+12y-16z+1=0$ tenglama bilan berilgan sfera markazi koordinatalarini va radiusini toping.

Masala 2. Markazi $0\_{1}(5;7;-1)$ nuqtada bo’lib, koordintalar boshidan o’tivchi sferani kanonik tenglamasini yozing.

Masala 3. Quyidagi tenglamlar qanday sirtlarni ifodlaydi?

1. $a^{2}+z^{2}=16$; b)$ \frac{x^{2}}{6}+\frac{z^{2}}{14}=1;$ c) $x=2z^{2}$; d) $\frac{z^{2}}{5}-\frac{x^{2}}{7}=1$

Masala 4. $y=3x$ to’g’ri chiziqni $Ox$ o’qi atrofida aylanishidan hosil bo’lgan sirt tenglamasini yozing

Masala 5 $\frac{x^{2}}{a^{2}}+\frac{y^{2}}{b^{2}}-\frac{z^{2}}{c^{2}}=0$ konusni $z=c$ tekislik bilan kesishish chizig’i tenglamasini yozing.

Masala 6. Quyidagi tenglamalar qanday sirtlarni aniqlaydi?

1. $x^{2}+y^{2}+4z^{2}-1=0$
2. $x^{2}+y^{2}-z^{2}-1=0$
3. $x^{2}-y^{2}-z^{2}-4=0$

J : a) $x^{2}+y^{2}+\frac{z^{2}}{\frac{1}{4}}=1$ - ellipsoid

b)$ x^{2}+y^{2}-z^{2}-4=1$ - bir pallali giperboloid

c) $y^{2}+z^{2}-x^{2}=-4$ - ikki pallali giperboloid .

Masala 7. $z=x^{2}+y^{2}$, $x^{2}+y^{2}=4, $ $z=0$ sirtlar bilan chegaralangan jism shaklini chizing.

1. Markazi koordinatalar boshida va $M\_{0}(-2;3;5)$ nuqtadan o’tuvchi sfera tenglamasini yozing.

 J: $x^{2}+y^{2}+z^{2}=38$

1. Quyidagi tenglamalar qanday sirtlarni ifodalaydi?
2. $4x^{2}+9y^{2}=36$
3. $4x^{2}-25y^{2}=100$
4. $y^{2}=2pz$
5. $y^{2}=x$ parabolani $Ox$ o’qi atrofida aylanishidan hosil bo’lgan sirt tenglamasini yozing.
6. Quyidagi tenglamalar qanday sirtlarni aniqlaydi?
7. $2x^{2}-5y^{2}-8=0$
8. $4x^{2}-8y^{2}+16z^{2}=0$
9. $8x^{2}-4y^{2}+24z^{2}-48=0$
10. $y^{2}=6x-4$
11. $3x^{2}+5y^{2}=12z$
12. $x^{2}+4y^{2}-8=0$
13. $z=y^{2}, x^{2}+y^{2}=9, z=0$ sirtlar bilan chegaralangan jism shaklini chizing.
14. $x^{2}+y^{2}+z^{2}+2x-6y+z-11=0$ tenglama bilan berilgan sferaning
15. $5x-y+2z-17=0$ tekislikka perpendikulyar diametrining parametrik tenglamasini yozing.

O’z-o’zini tekshirish uchun savollar.

1. Ikkinchi tartibli sirtning umumiy tenglamasi qanday shartlarda markazi koordinata boshida bo’lgan sferani aniqlaydi?
2. Uch o’qli ellipsoidning kanonik tenglamasini yozing.
3. Bir pallali va ikki pallali giperboloidning kanonik tenglamasini yozing va ularning farqlarini izohlab bering.
4. Uchi koordinatalar boshida bo’lib $xOy$ va $zOy$ simmetriya tekisliklariga ega bo’lgan elliptik paraboloid kanonik tenglamasini yozing.
5. $f\left(x,y\right)=0$ yassi chiziqning $Ox$ o’qi atrofida aylanishidan hosil bo’lgan sirt tenglamasini yozing.
6. $x^{2}=2py$ parabolaning $Oy$ simmetriya o’qi atrofida aylanishidan qanday sirt hosil bo’ladi?
7. $\frac{x^{2}}{a^{2}}-\frac{y^{2}}{b^{2}}=1$ giperbolaning $Ox $o’qi atrofida, $Oy$ o’qi atrofida aylanishidan qanday sirtlar hosil bo’ladi?
8. Qanday shartda $\frac{x^{2}}{a^{2}}+\frac{y^{2}}{b^{2}}=1$ elliptik silindr o’qi $Oz$ bo’lgan aylanish sirti bo’ladi?
9. O’qi $Oy$ bo’lgan parabolik silindrning kanonik tenglamasini yozing.