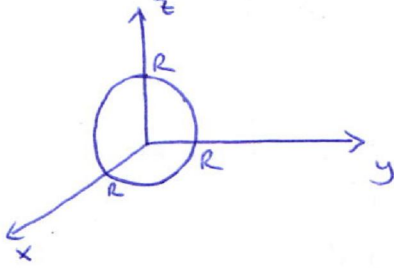


## TEMEL YÜZEYLER

③

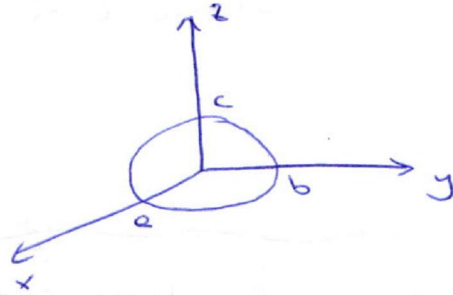
Küre:  $x^2 + y^2 + z^2 = R^2 \Rightarrow$  Yarıçapı  $R$  olan, orjin merkezli küre



$(x-a)^2 + (y-b)^2 + (z-c)^2 = R^2 \Rightarrow$  Merkezi  $M(a,b,c)$  noktası olan  $R$  yarıçaplı küre

Elipsoid:

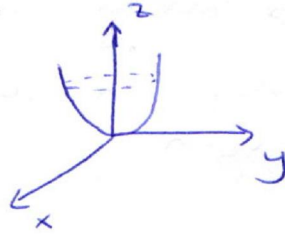
$$\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1 \rightarrow \text{Orjin merkezli elipsoid}$$



Paraboloid:

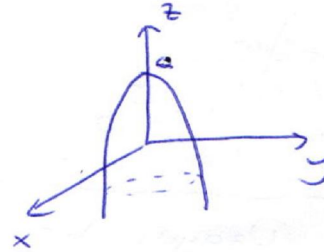
①  $z = ax^2 + by^2 \quad (a, b > 0)$   
 $\Downarrow$   
Orjin tepe noktalı,  
kolları yukarı paraboloid

}  $\Rightarrow$

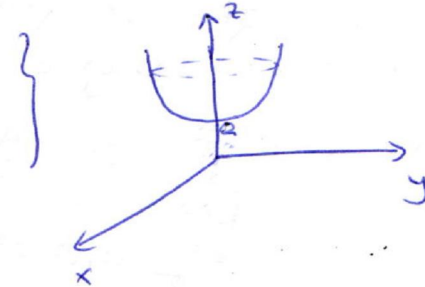


②  $z = a - x^2 - y^2 \Rightarrow (0,0,a)$  tepe noktalı, kolları aşağı paraboloid

}  $\Rightarrow$



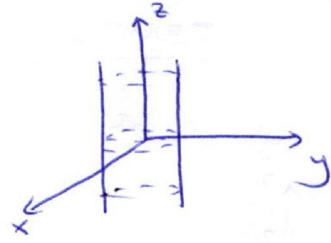
③  $z = a + x^2 + y^2 \Rightarrow (0,0,a)$  tepe noktalı, kolları yukarı



Silindir:

$$x^2 + y^2 = r^2 \Rightarrow z \text{ boyunca uzanan silindir}$$

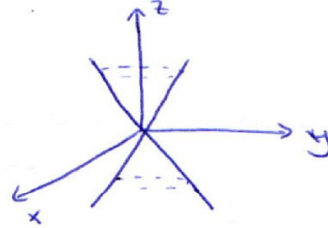
=)



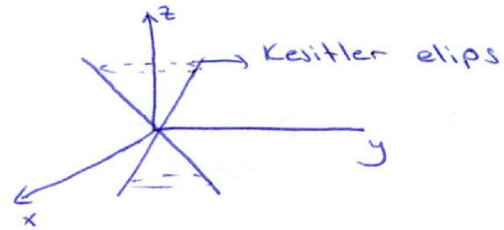
(4)

Koni:

$$* x^2 + y^2 = z^2 \Rightarrow \text{Dairesel Koni} \Rightarrow$$

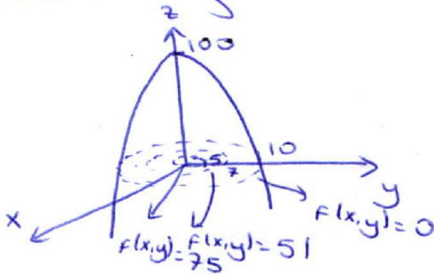


$$* \frac{x^2}{a^2} + \frac{y^2}{b^2} = z^2 \Rightarrow \text{Eliptik Koni} \Rightarrow$$



Seviye Eğrisi: Bir  $f(x,y)$  fonksiyonunun bir  $f(x,y)=c$  sabit değerine sahip olduğu noktaların kümesi  $f$ 'in seviye eğrisidir.

(\*)  $f(x,y)=100-x^2-y^2$  nin şeklini çizip  $f(x,y)=0, 75, 51$  seviye eğrilerini gösterin.



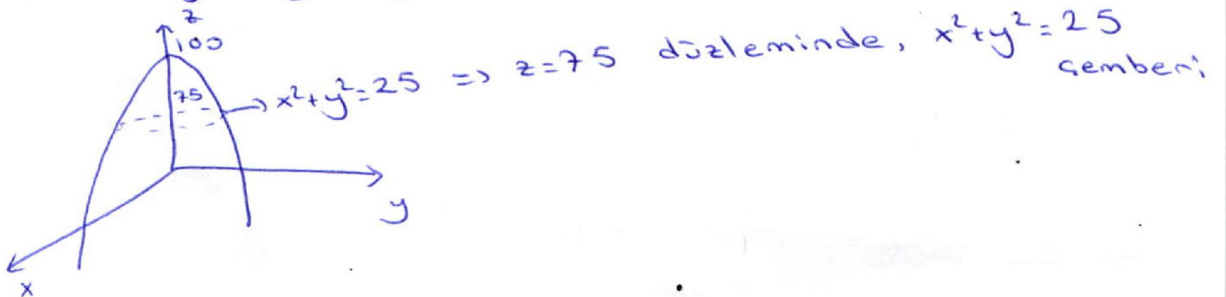
$$f(x,y)=0 \Rightarrow x^2 + y^2 = 100 \text{ çemberi}$$

$$f(x,y)=51 \Rightarrow x^2 + y^2 = 49 \text{ "}$$

$$f(x,y)=75 \Rightarrow x^2 + y^2 = 25 \text{ "}$$

Kontür Eğrisi: Uzayda bir  $z=c$  düzleminin bir  $z=f(x,y)$  yüzeyini kestiği eğri  $f(x,y)=c$  değerini temsil eden noktardan oluşur. Buna  $f(x,y)=c$  kontür eğrisi denir.

(\*)  $f(x,y)=100-x^2-y^2$  yüzeyinin  $f(x,y)=75$  kontür eğrisi?



⊗  $w = \sqrt{1-x^2-y^2-z^2}$  Tanım bölgesi?

$$1-x^2-y^2-z^2 \geq 0 \Rightarrow x^2+y^2+z^2 \leq 1 \Rightarrow$$

