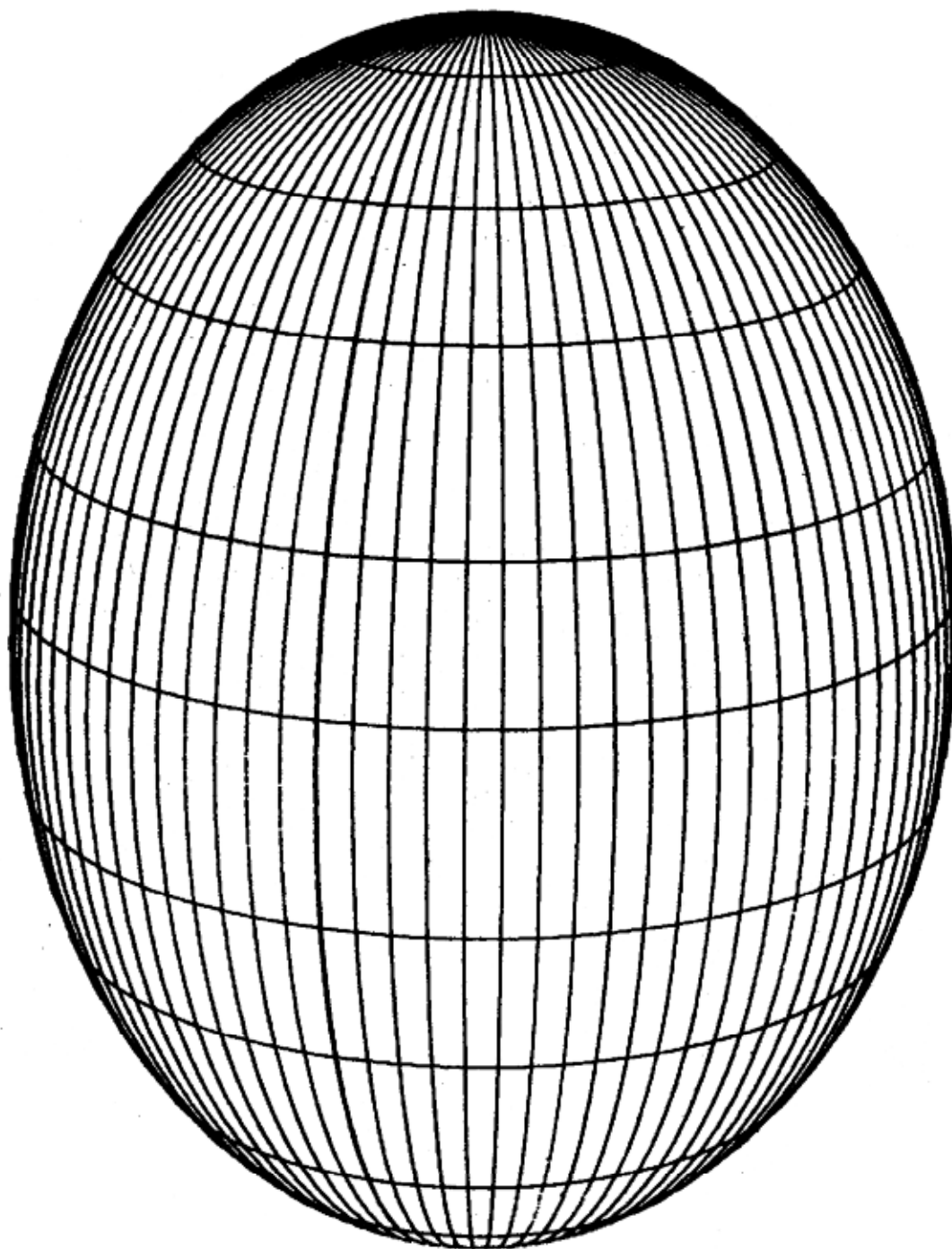


Surfaces

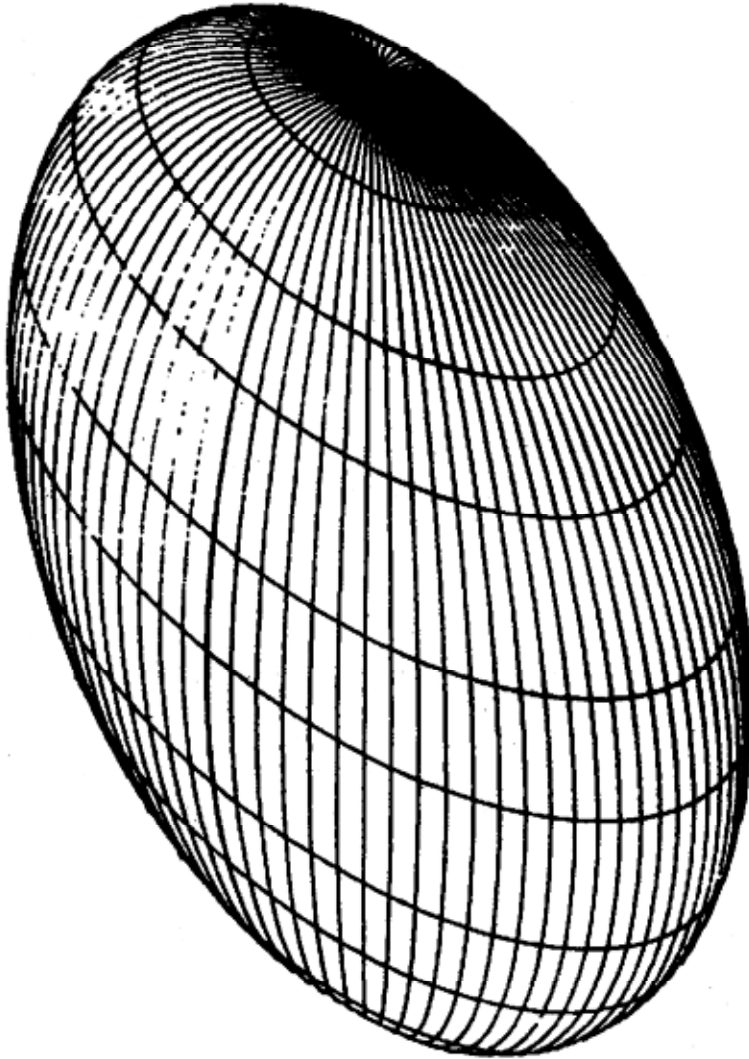
1. ELLIPSOIDE DE REVOLUTION



$$X = 3 \cos(V) \cos(U) \quad Y = 3 \cos(V) \sin(U) \quad Z = 4 \sin(V)$$

$$\left[0 < U < 2\pi \quad ; \quad -\frac{\pi}{2} < V < \frac{\pi}{2} \right]$$

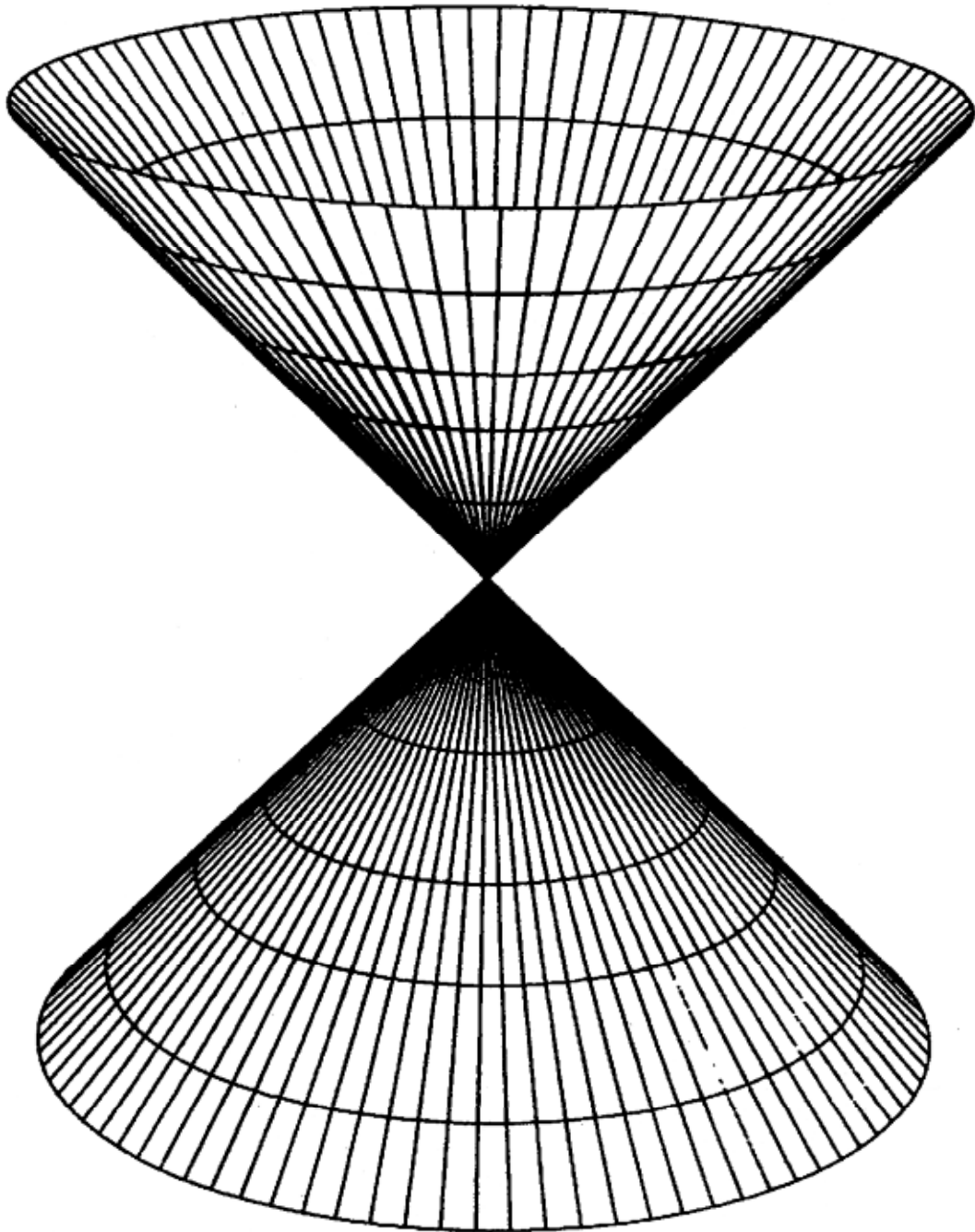
2, ELLIPSOIDE



$$X = \cos(V) \cos(U) \quad Y = 2 \cos(V) \sin(U) \quad Z = 3 \sin(V)$$

$$\left[0 < U < 2\pi \quad ; \quad -\frac{\pi}{2} < V < \frac{\pi}{2} \right]$$

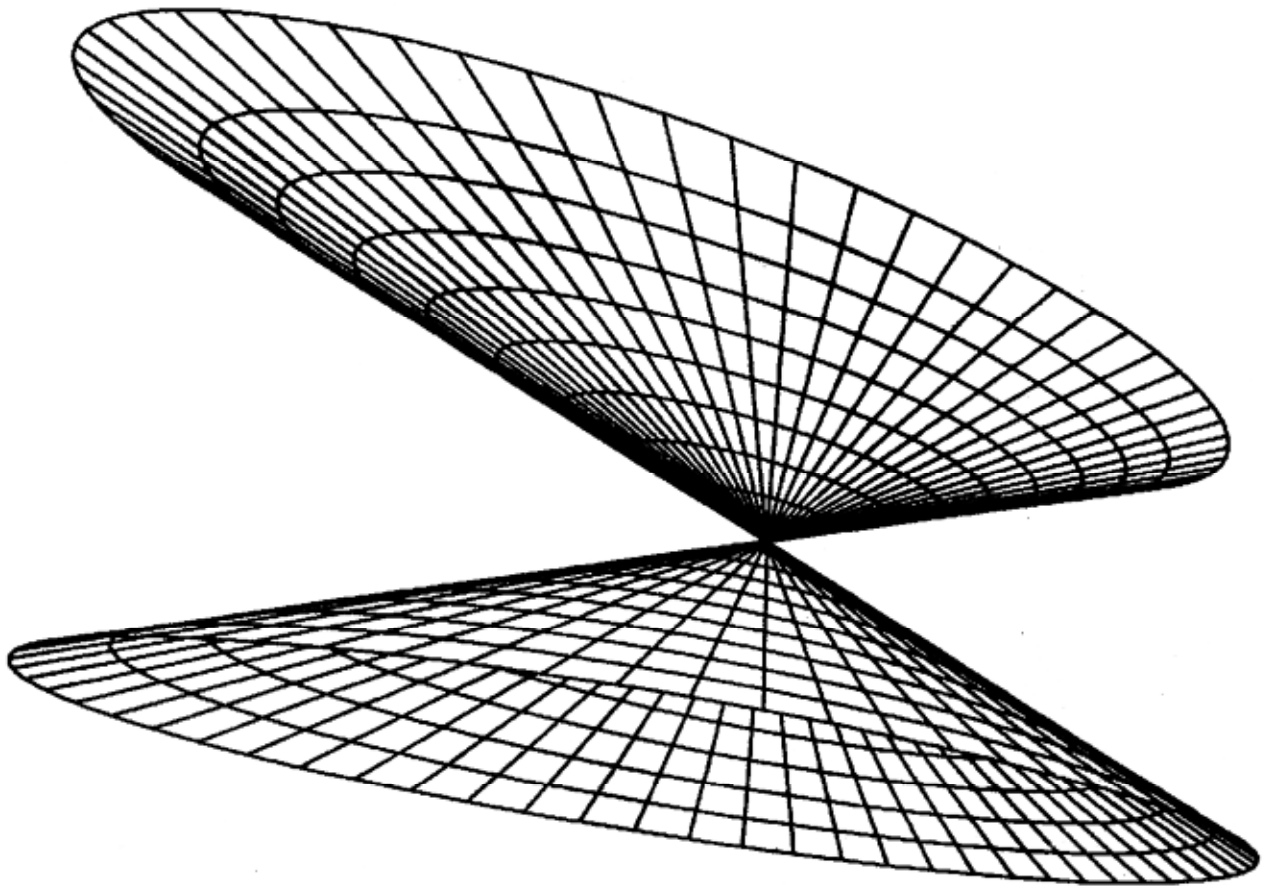
3. CONE DE REVOLUTION



$$X = V \cos(U) \quad Y = V \sin(U) \quad Z = \sqrt[3]{10} V$$

$$\left[0 \leq U \leq 2\pi \quad ; \quad -2.85 \leq V \leq 2.85 \right]$$

4. CONE ELLIPTIQUE



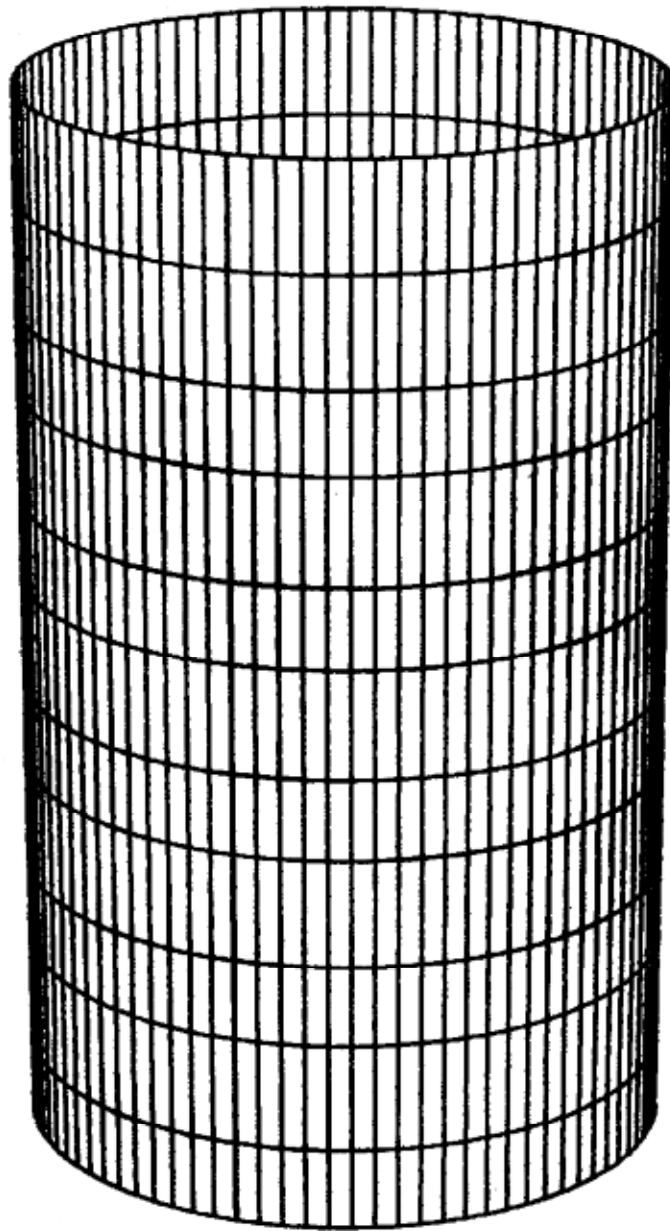
$$X = 3 \cos(U) V$$

$$Y = \sin(U) V$$

$$Z = V$$

$$\left[0 < U < 6.28 \quad ; \quad -3.5 < V < 3.5 \right]$$

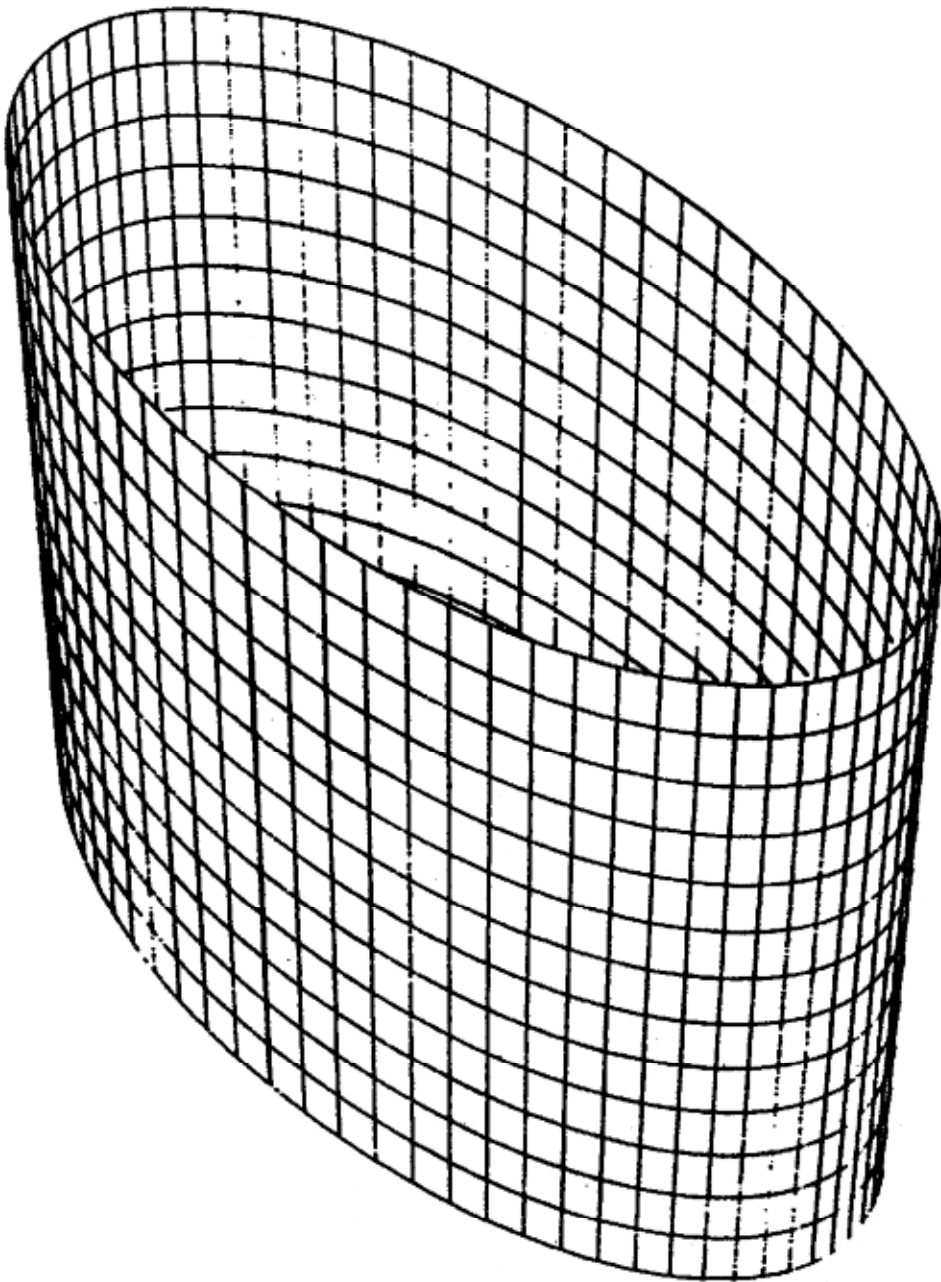
5. CYLINDRE CIRCULAIRE



$$X = \frac{3}{2} \cos(U) \quad Y = \frac{3}{2} \sin(U) \quad Z = V$$

$$\left[0 < U < 2\pi \quad ; \quad -2.5 < V < 2.5 \right]$$

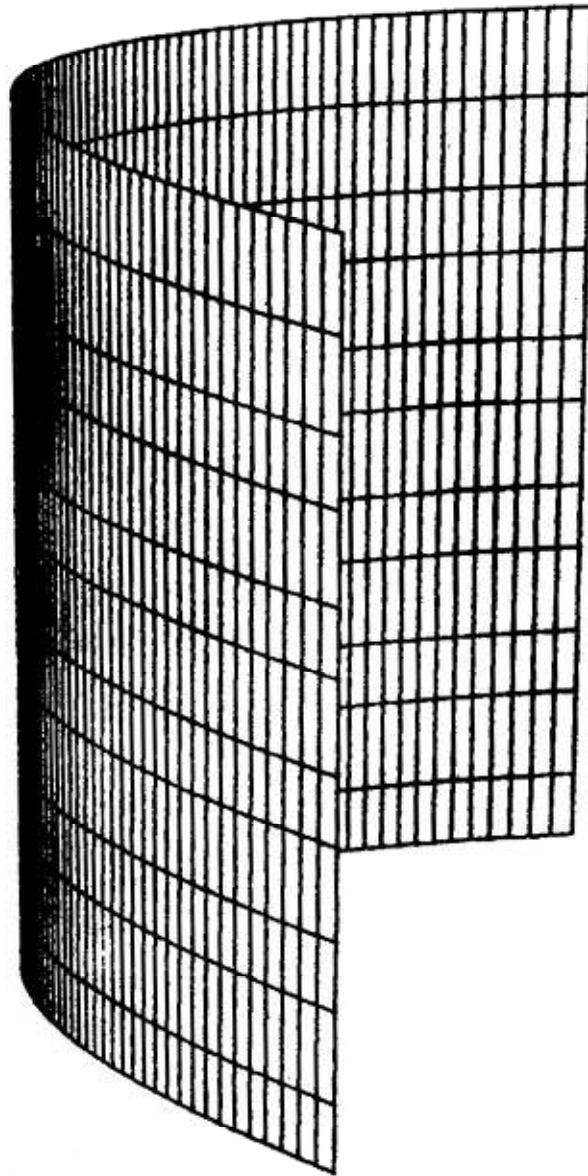
6. CYLINDRE ELLIPTIQUE



$$X = \frac{3}{2} \cos (U) \quad Y = 3 \sin (U) \quad Z = V$$

$$\left[0 < U < 2\pi \quad ; \quad -2.5 < V < 2.5 \right]$$

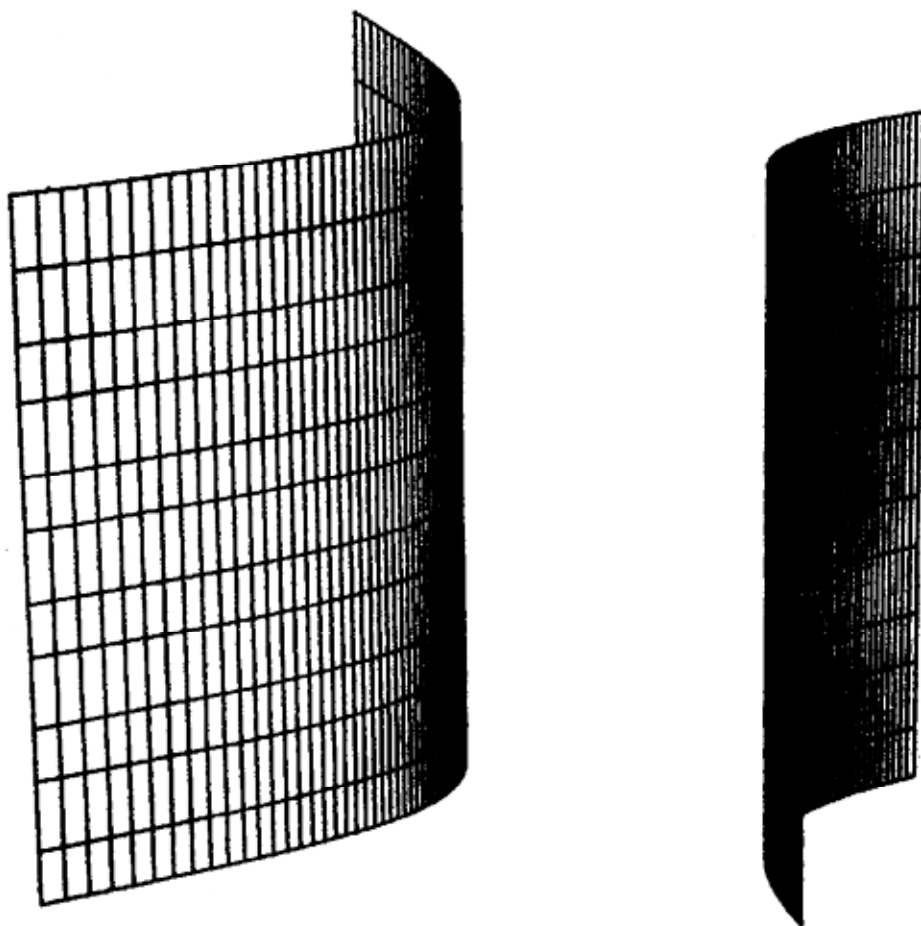
7. CYLINDRE PARABOLIQUE



$$X = U \quad Y = \frac{U^2}{2} \quad Z = V$$

$$[-2 \leq U \leq 2 \quad -2 \leq V \leq 2]$$

8. CYLINDRE HYPERBOLIQUE



$$X = \text{SH}(U)$$

$$Y = \pm \text{CH}(U)$$

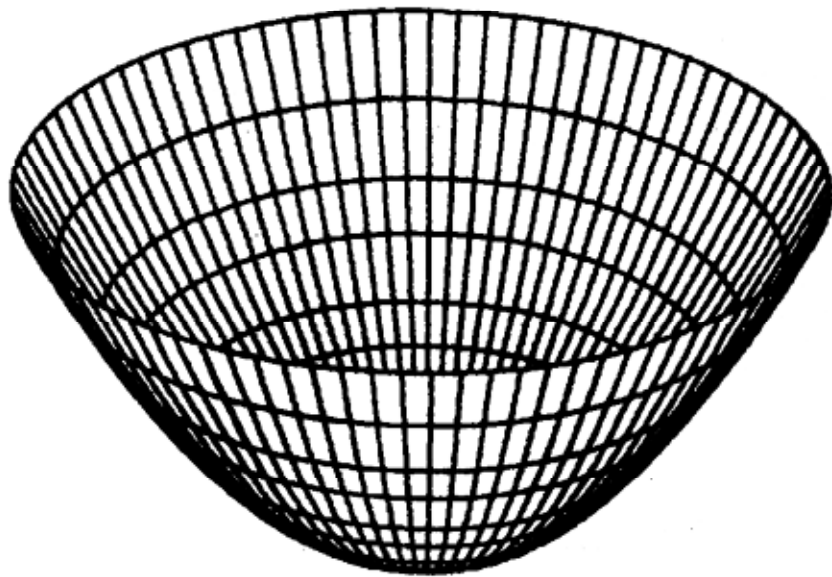
$$Z = V$$

$$\left[-0,97 < U < 0,97 \quad (\text{POUR } Y = +\text{CH}(U)) \right]$$

$$\left[-1,57 < U < 1,57 \quad (\text{POUR } Y = -\text{CH}(U)) \right]$$

$$-2 < V < 2$$

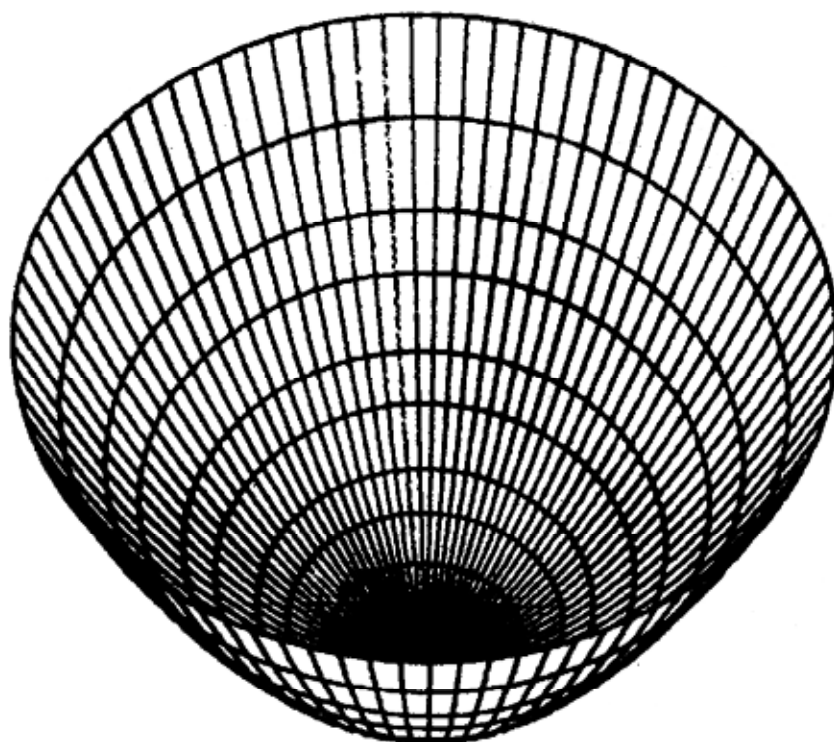
9. PARABOLOIDE DE REVOLUTION



$$X = V \cos(U) \quad Y = V \sin(U) \quad Z = V^2$$

$$\left[0 \leq U < 2\pi \quad ; \quad 0 \leq V \leq 1 \right]$$

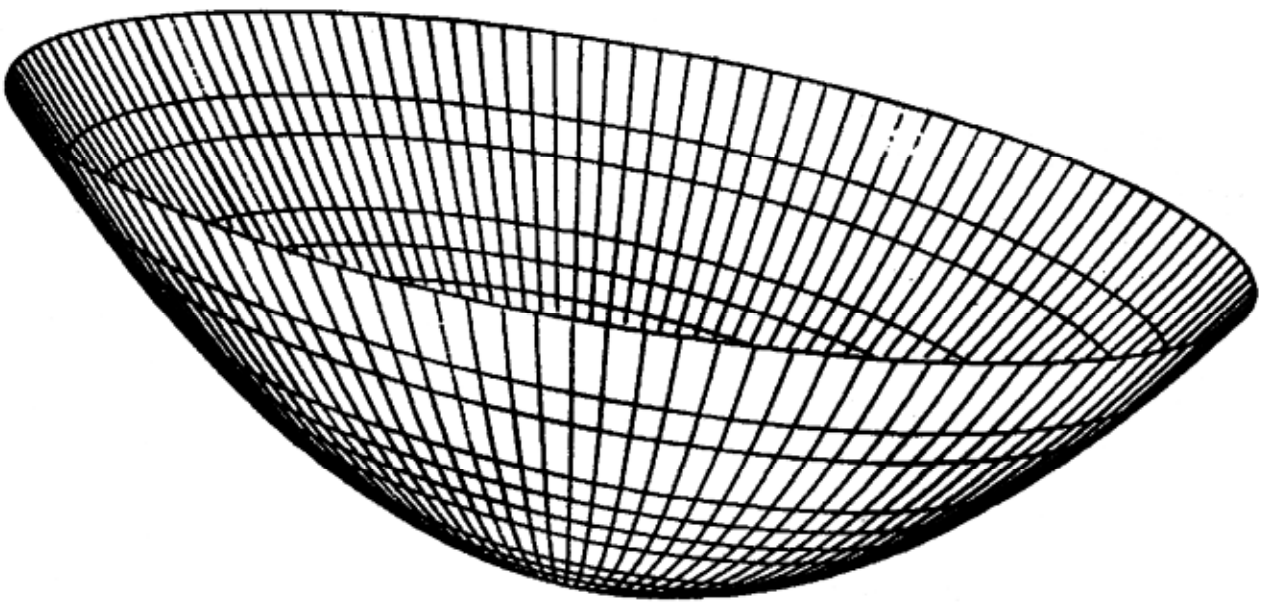
9. PARABOLOIDE DE REVOLUTION



$$X = V \cos(U) \quad Y = V \sin(U) \quad Z = V^2$$

$$\left[0 \leq U \leq 2\pi \quad ; \quad 0 \leq V \leq 1.42 \right]$$

10. PARABOLOIDE ELLIPTIQUE



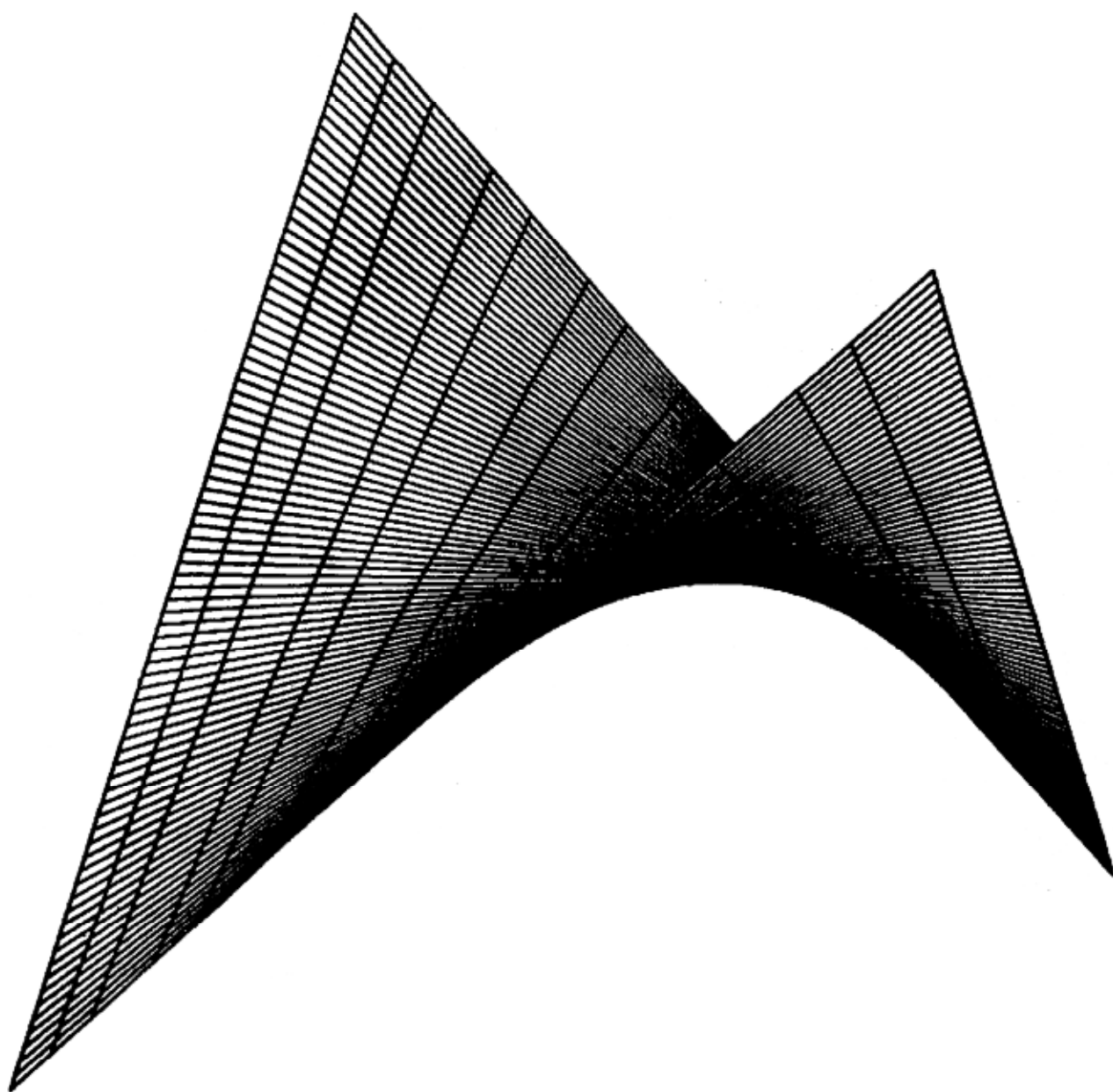
$$X = V \cdot \sin(U)$$

$$Y = 2 \cdot V \cdot \cos(U)$$

$$Z = v^2$$

$$[-1 \leq U < 1 \quad ; \quad -1 \leq V < 1]$$

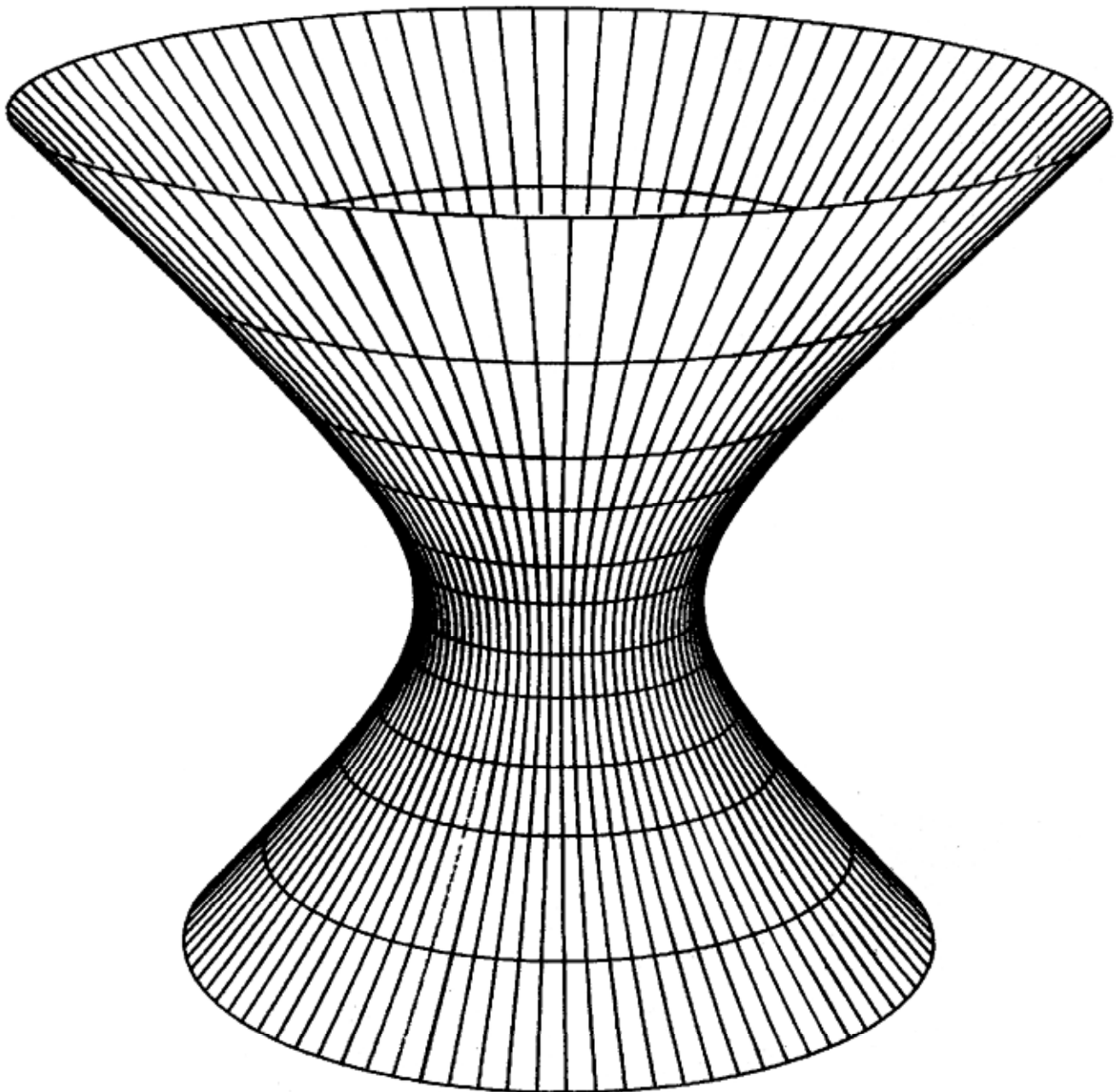
11. PARABOLOIDE HYPERBOLIQUE



$$X = U \quad Y = V \quad Z = \frac{U \cdot V}{3}$$

$$\left[-3 < U < 3 \ ; \ -3 < V < 3 \right]$$

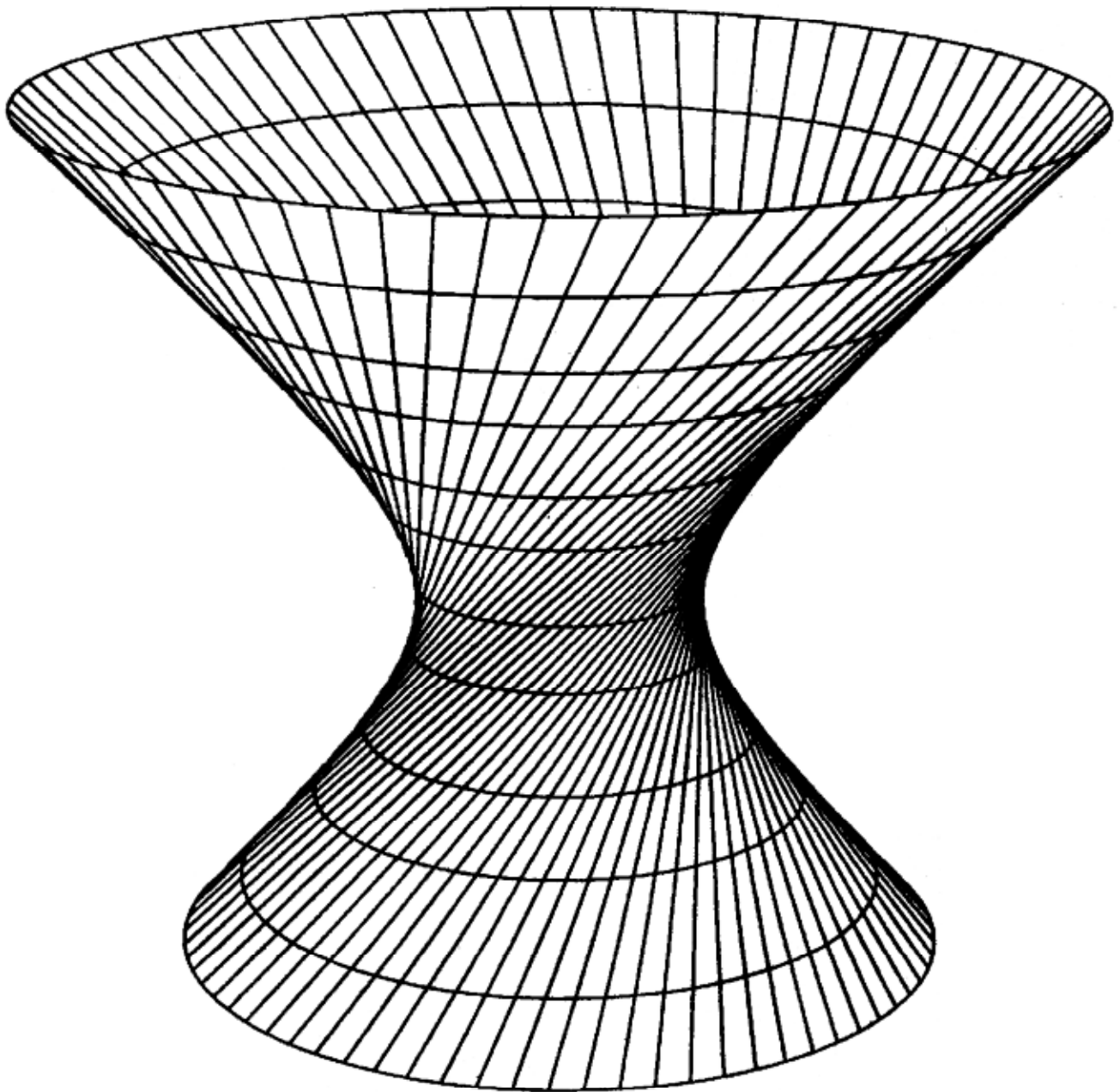
12. HYPERBOLOIDE DE REVOLUTION A UNE NAPPE



$$X = \text{CH}(V) \cos(U) \quad Y = \text{CH}(V) \sin(U) \quad Z = \text{SH}(V)$$

$$\left[0 \leq U < 2\pi \quad ; \quad -1.65 < V < 1.97 \right]$$

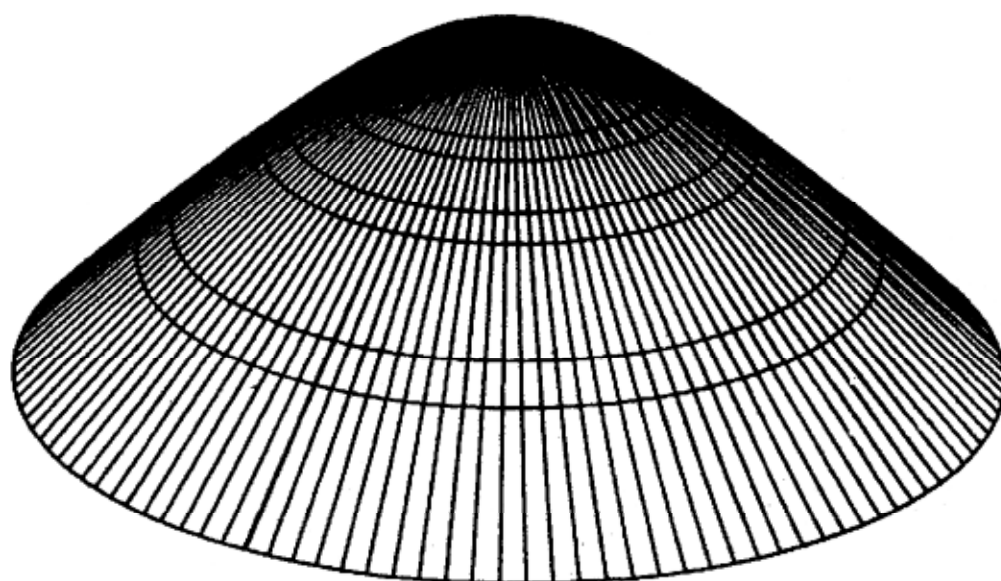
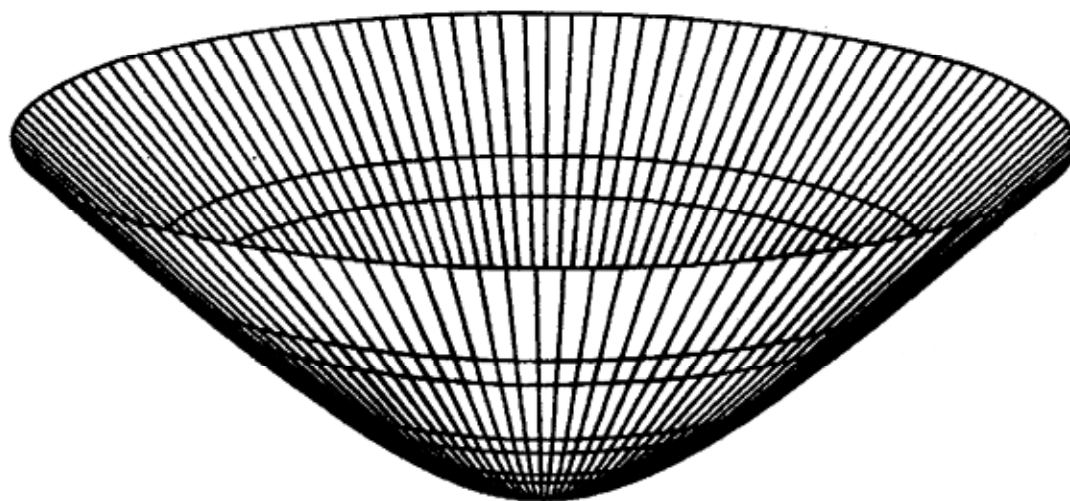
13. HYPERBOLOIDE A UNE NAPPE



$$X = \cos(U) - V \sin(U) \quad Y = \sin(U) + V \cos(U) \quad Z = V$$

$$\left[0 \leq U \leq 2\pi \quad -2.5 \leq V \leq 3.5 \right]$$

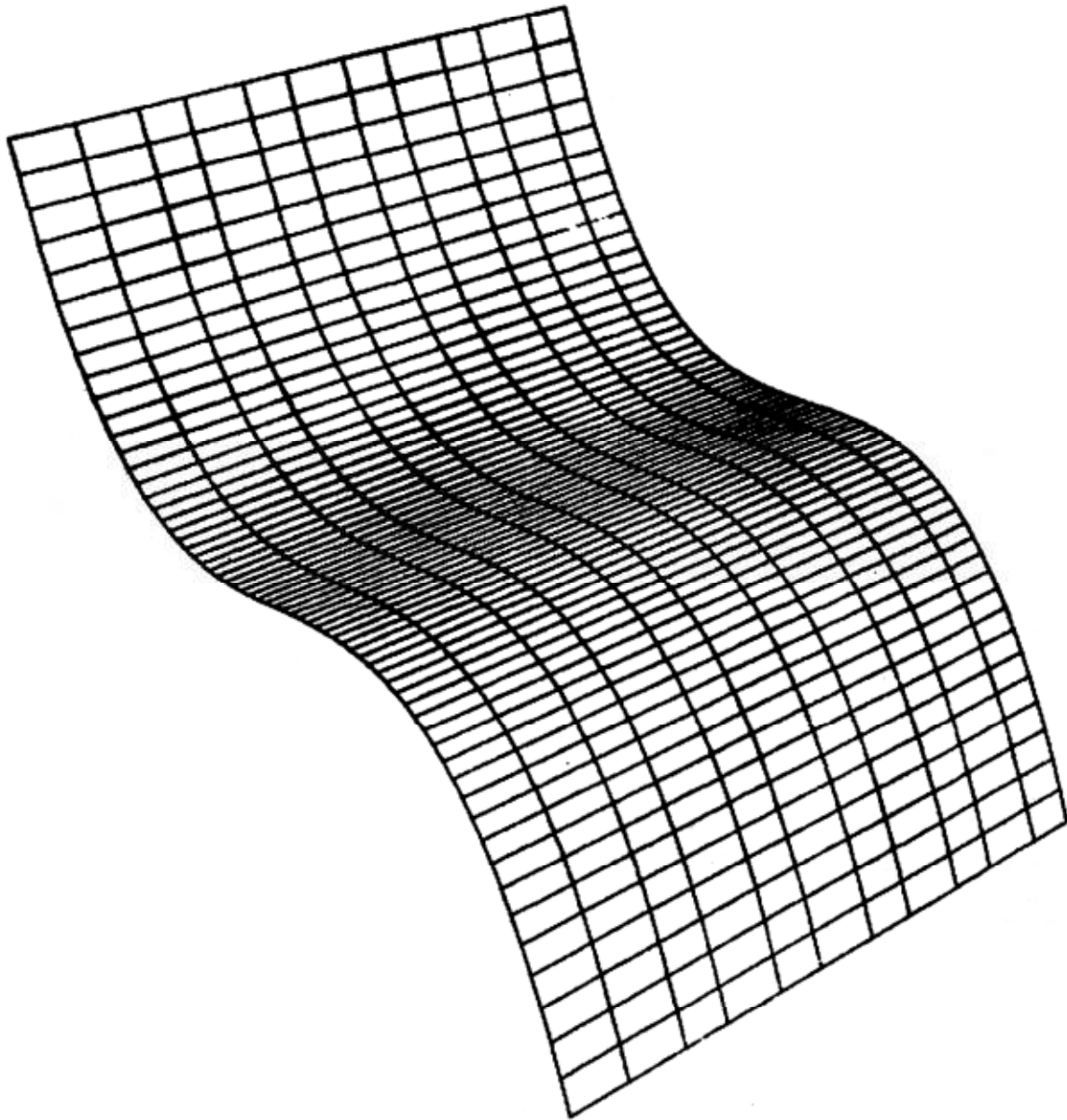
14. HYPERBOLOIDE A DEUX NAPPES



$$X = \text{SH}(V) \cos(U) \quad Y = \text{SH}(V) \sin(U) \quad Z = \pm \text{CH}(V)$$

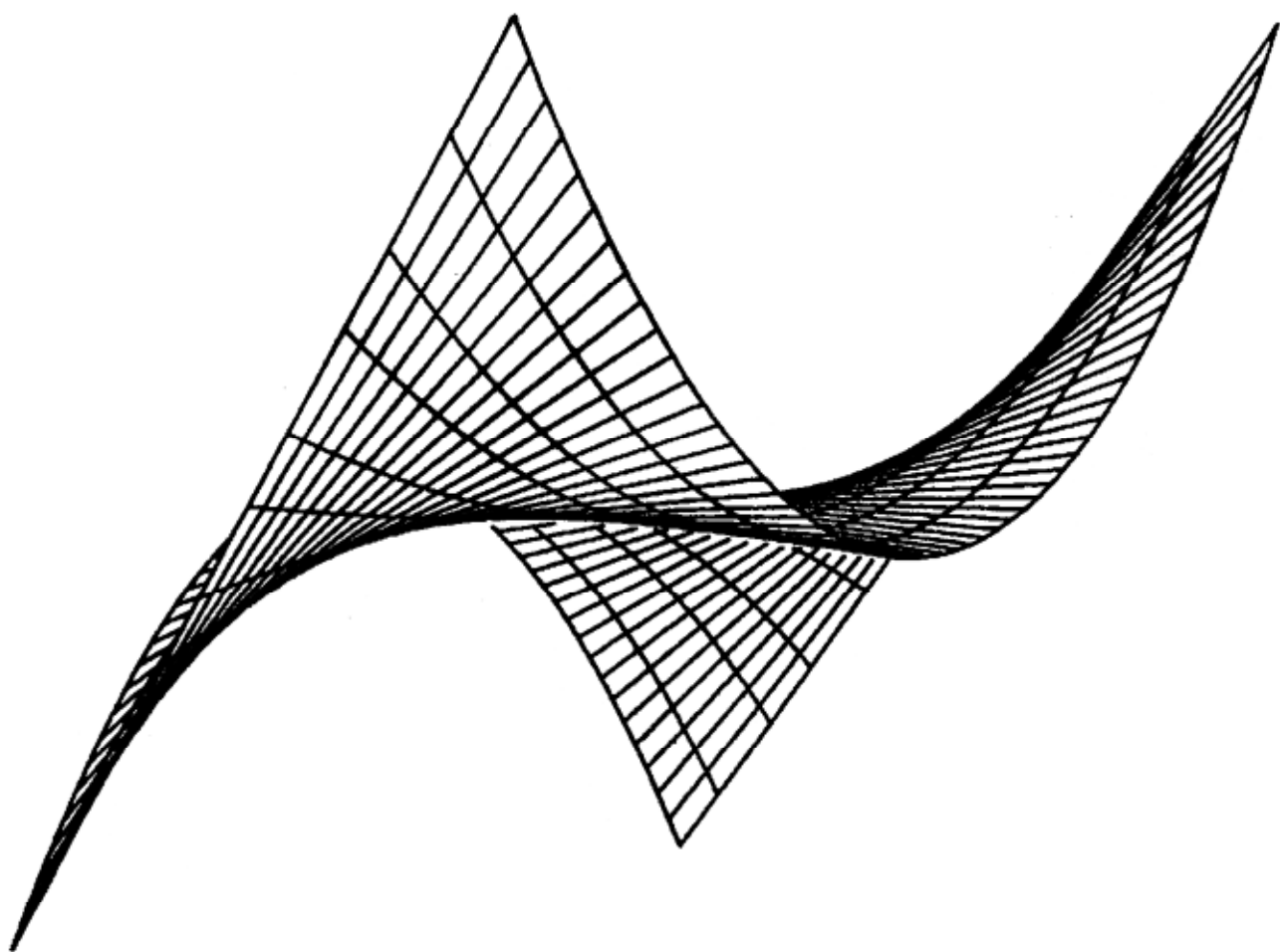
$$[0 < U < 2\pi \quad -1.77 < V < 1.77]$$

15. SURFACE ALGEBRIQUE



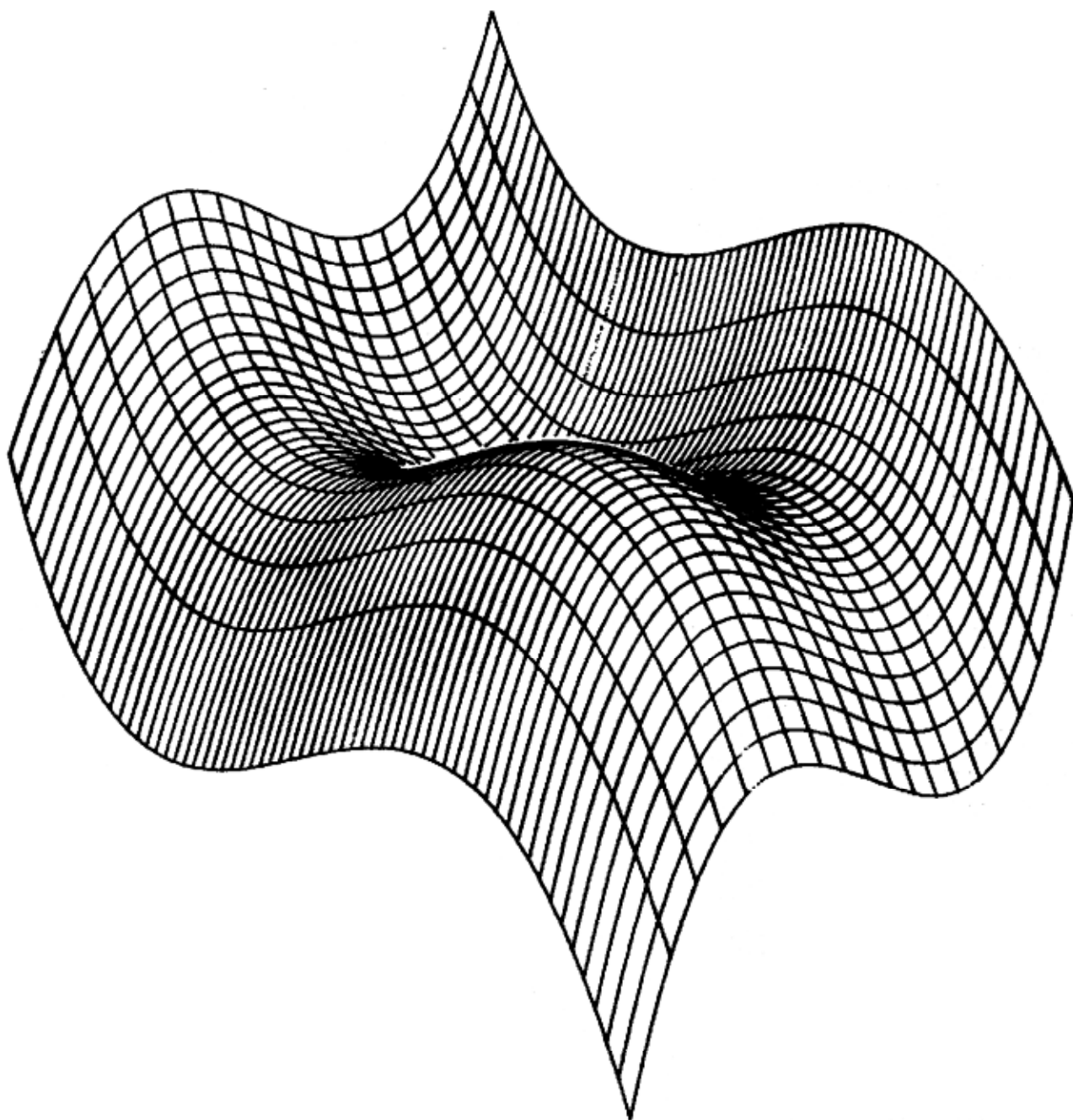
$$z = x^3$$

16. SURFACE ALGEBRIQUE



$$z = x^2 y$$

17. SURFACE ALGEBRIQUE



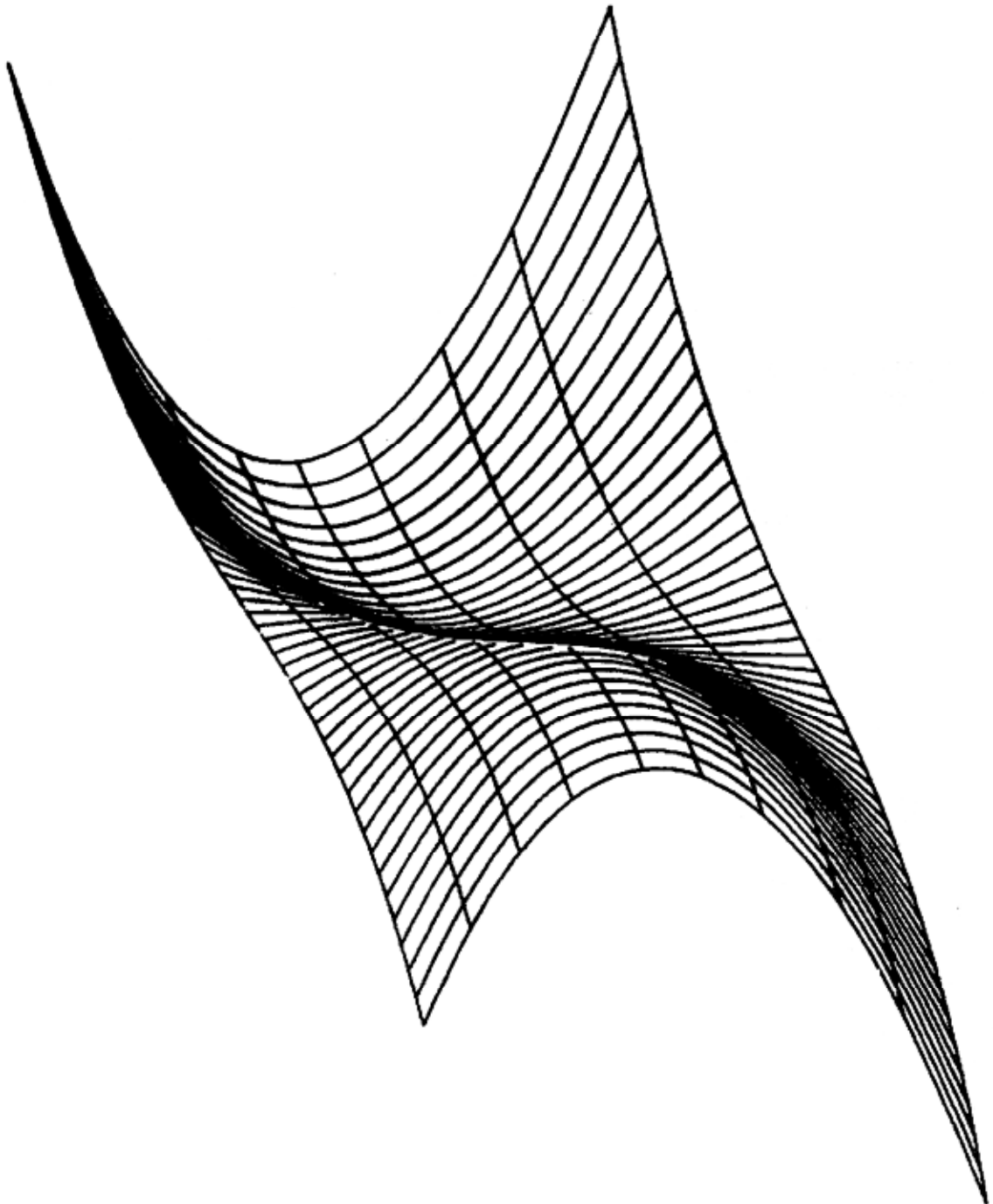
$$X = U$$

$$Y = V$$

$$Z = U^3 + V^3$$

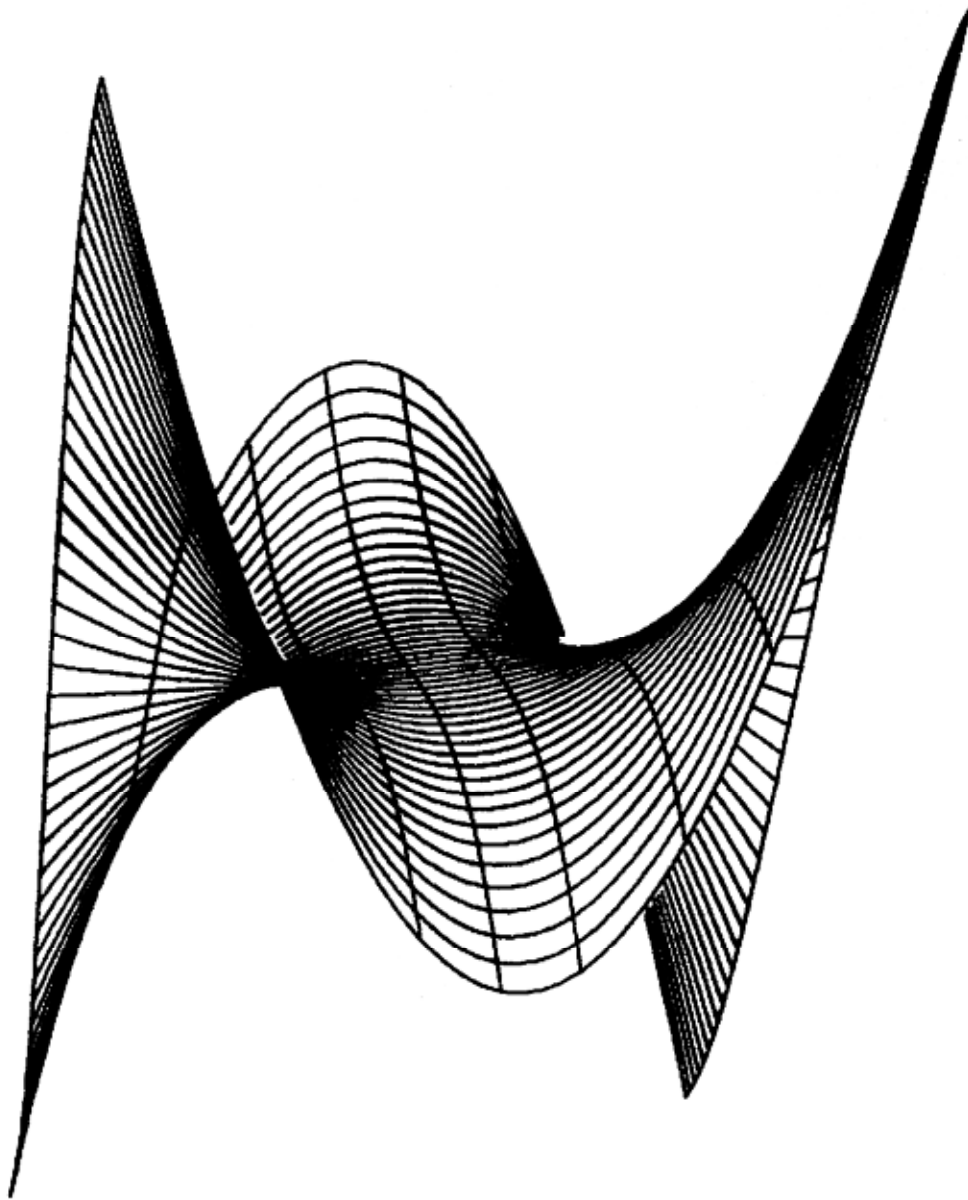
$$[-1 \leq U \leq 1 \quad ; \quad -1 \leq V \leq 1]$$

18. SURFACE ALGEBRIQUE



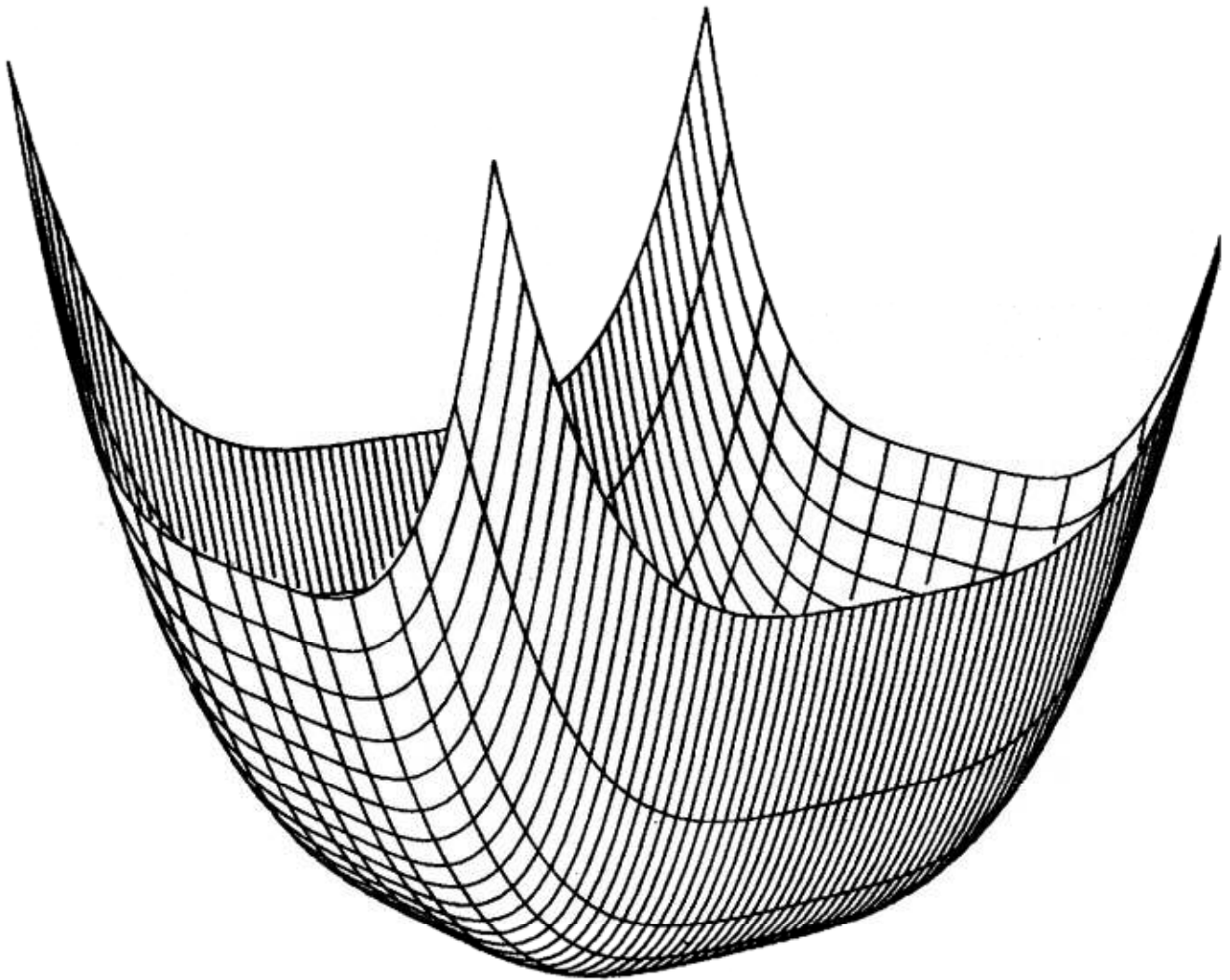
$$z = x^3 + xy^2$$

19.SURFACE ALGEBRIQUE



$$z = x^3 - 3xy^2$$

20. SURFACE ALGEBRIQUE



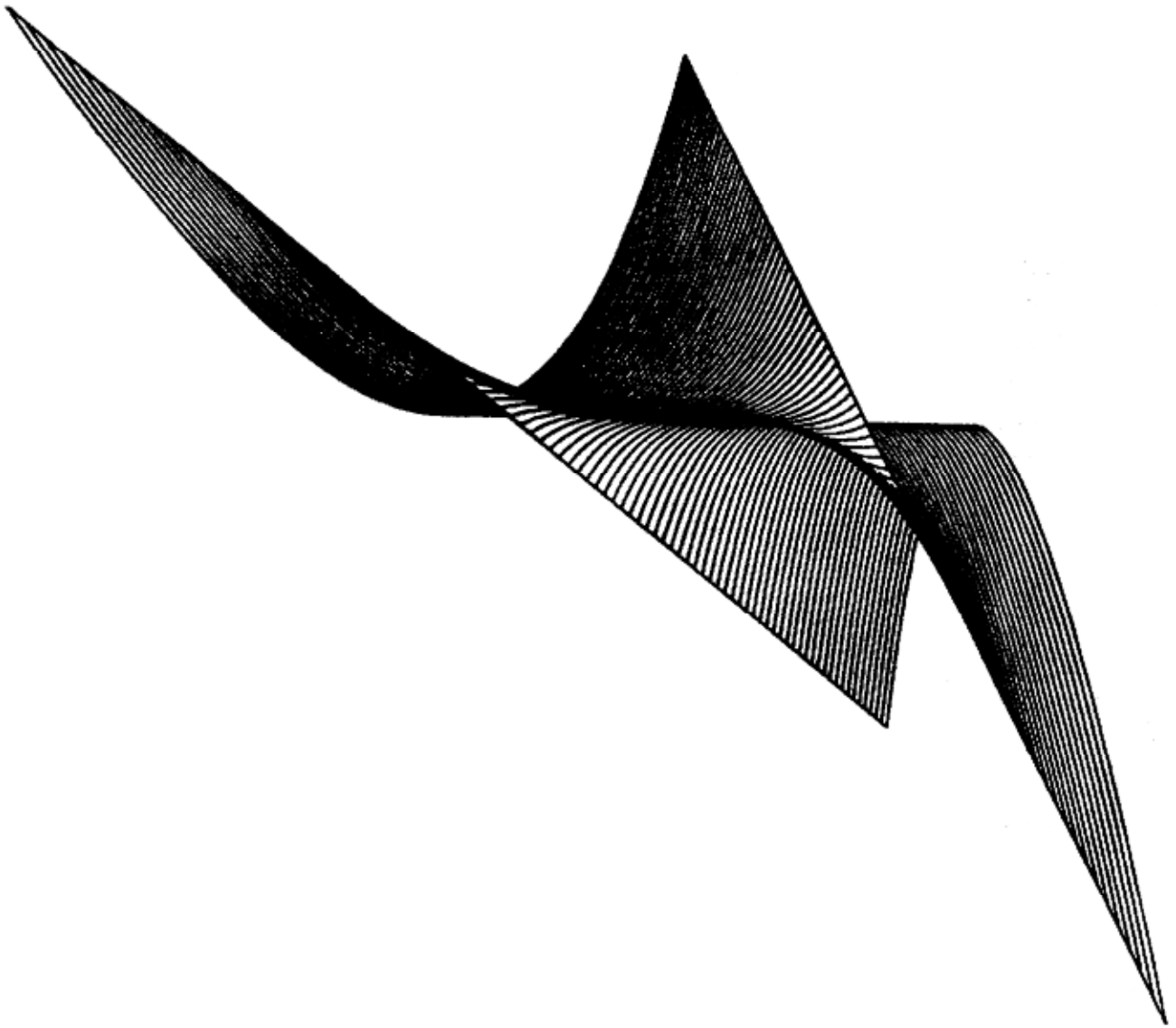
$$X = U$$

$$Y = V$$

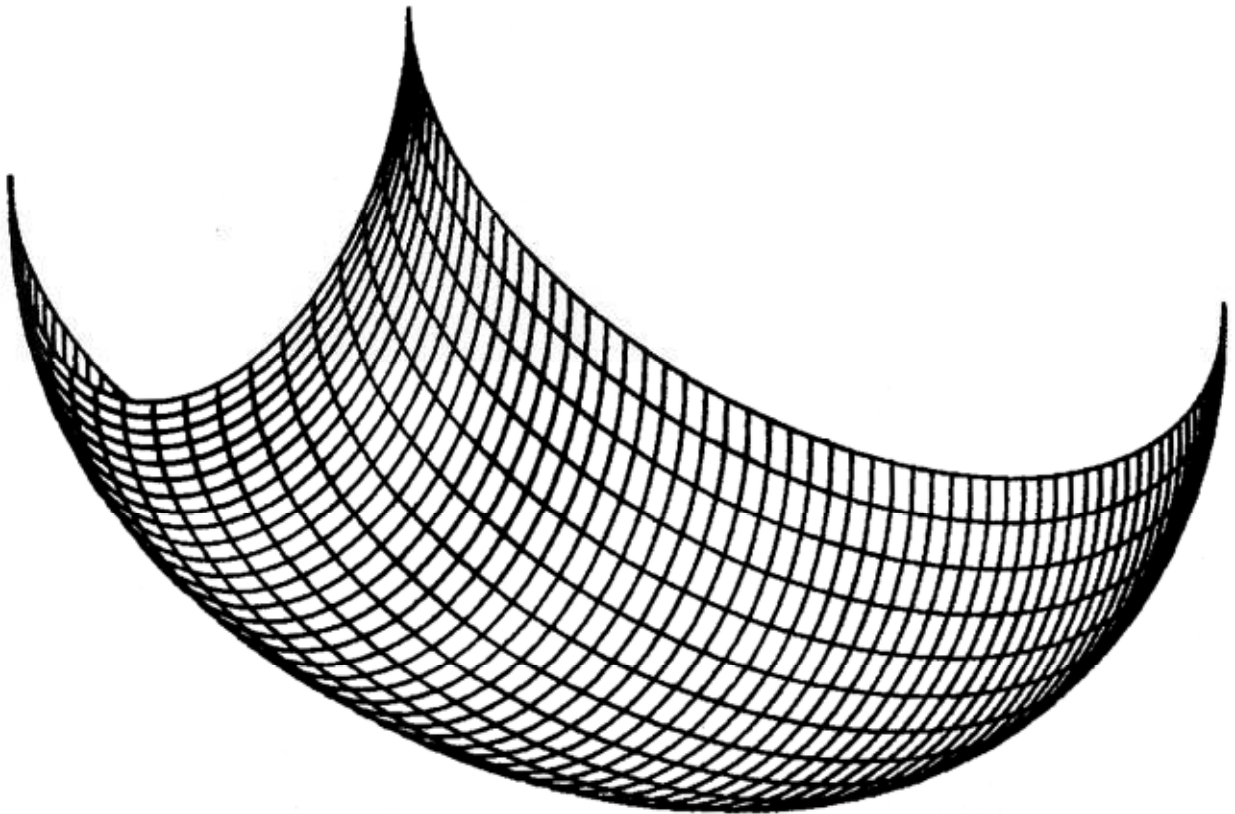
$$Z = U^4 + V^4$$

$$[-1 < U < 1 \quad ; \quad -1 < V < 1]$$

21. SURFACE REGLEE DEVELOPPABLE



22. SURFACE DE TRANSLATION



$$X = \cos(T)$$

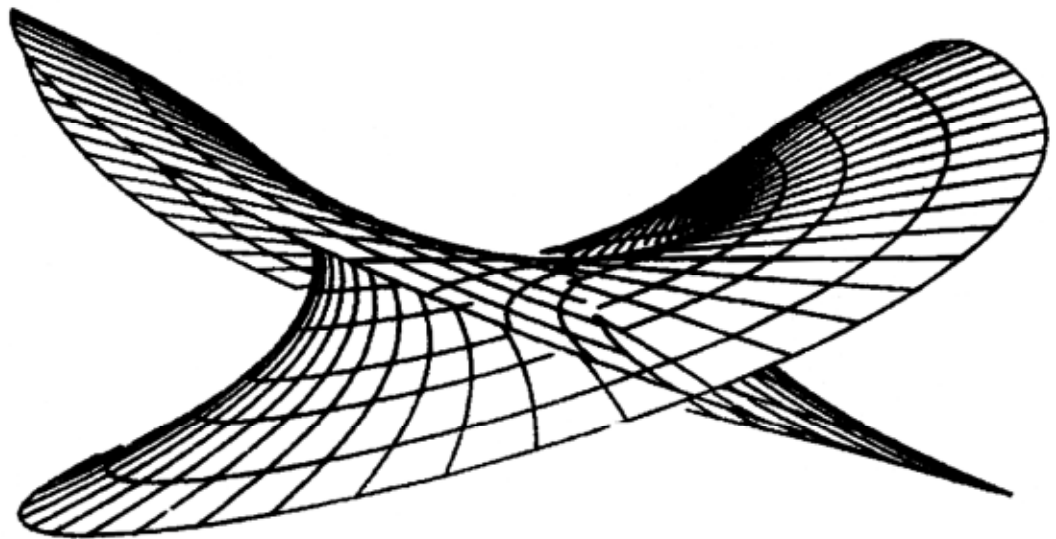
$$Y = 2\cos(U)$$

$$Z = \sin^2(V) - 1 + \sin(U)$$

$$0 \leq U \leq 3.14$$

$$0 \leq V \leq 3.14$$

23. SURFACE DE ROTATION



$$X = (U^2 + 1)\cos(T) - U\sin(T)\cos(T)$$

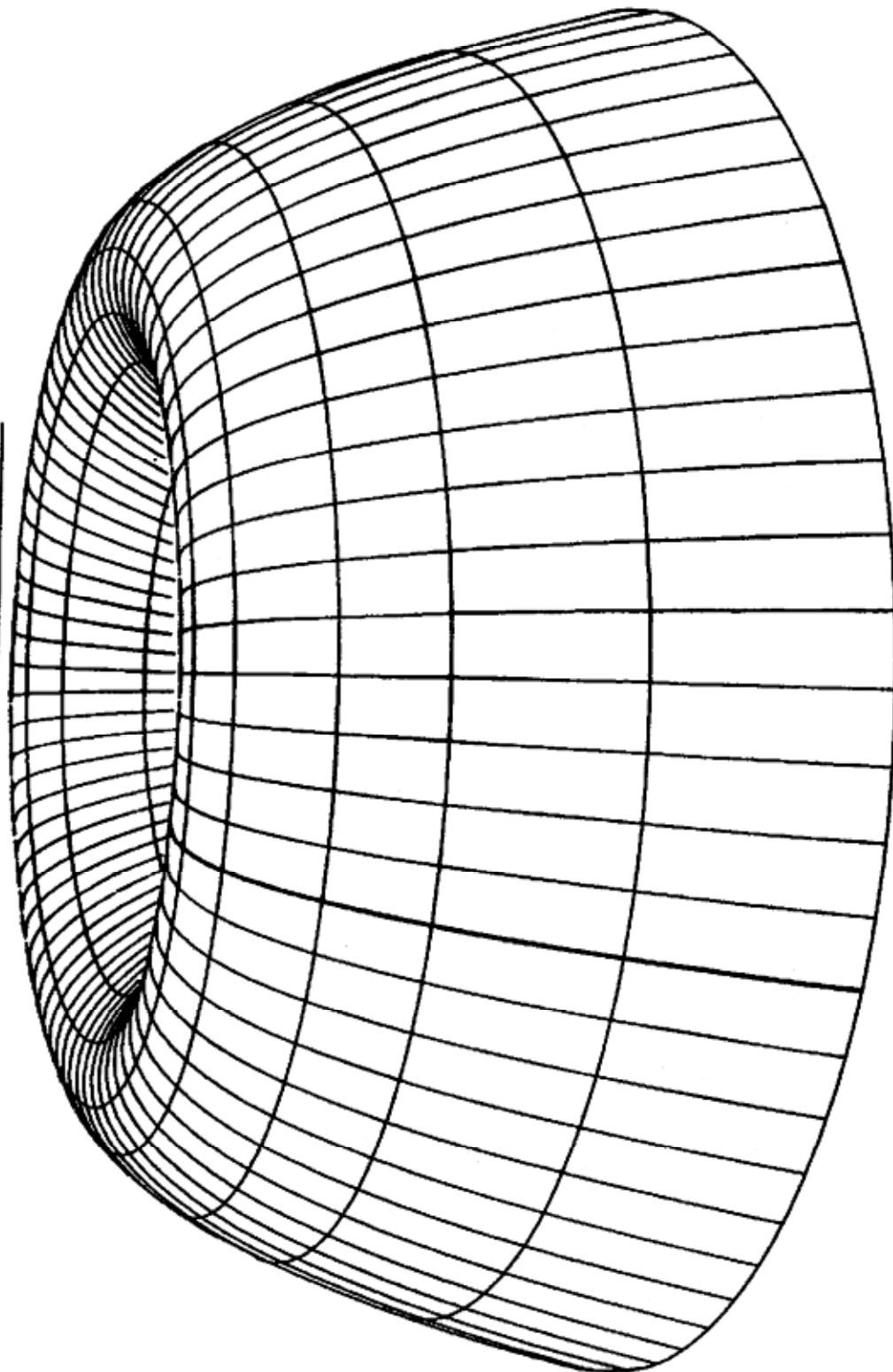
$$Y = (U^2 + 1)\sin(T) + U\cos^2(T)$$

$$Z = -U\sin(T)$$

$$-2 < U < 2$$

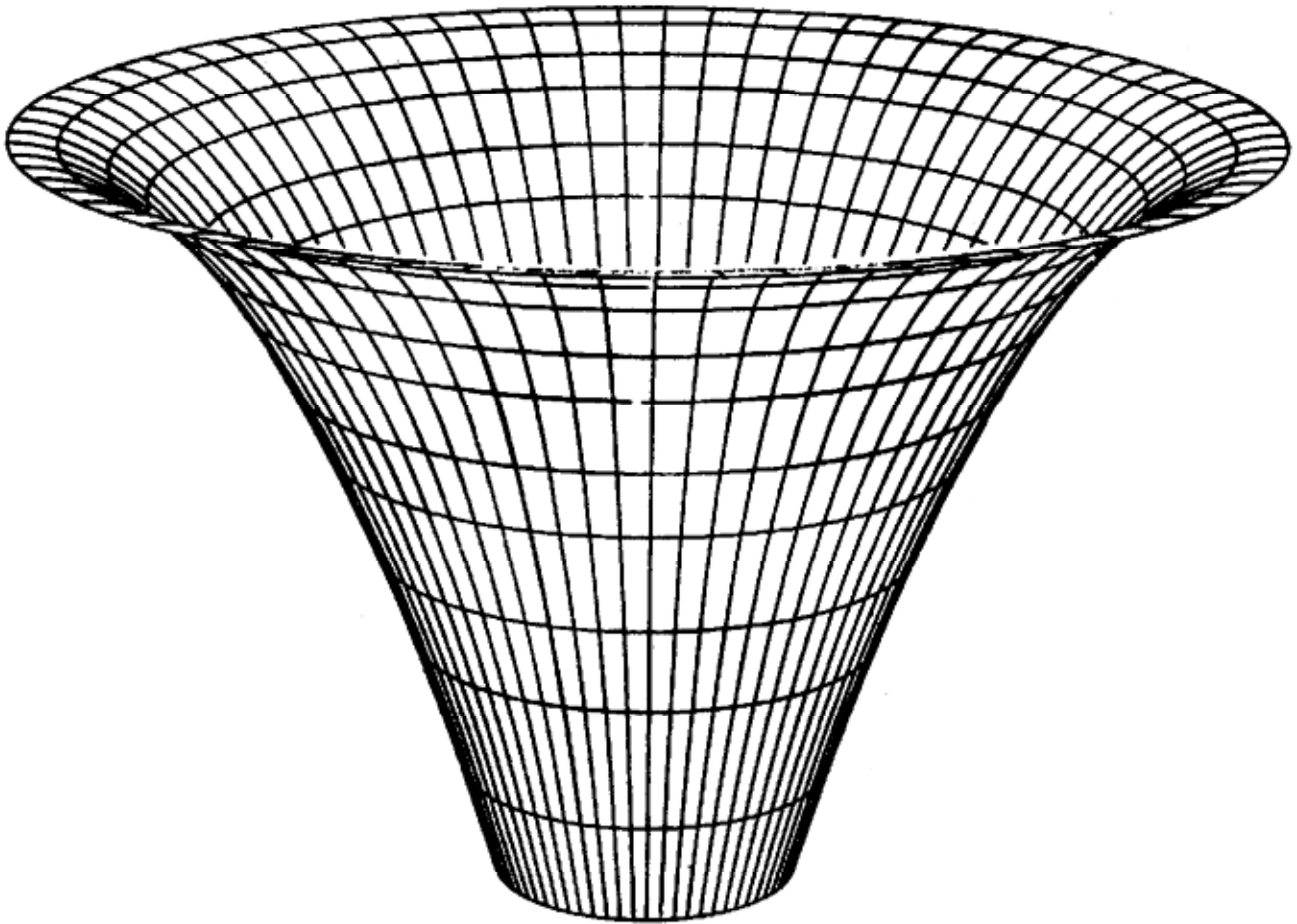
$$0 < T < 6.28$$

24. SURFACE DE REVOLUTION A MERIDIEN PARABOLIQUE



$$X = V \cos(U) \quad Y = V \sin(U) \quad Z = -\frac{5}{9} (V - 4)^2 + 3$$
$$[0 \leq U < 2\pi \quad ; \quad 1 \leq V < 7]$$

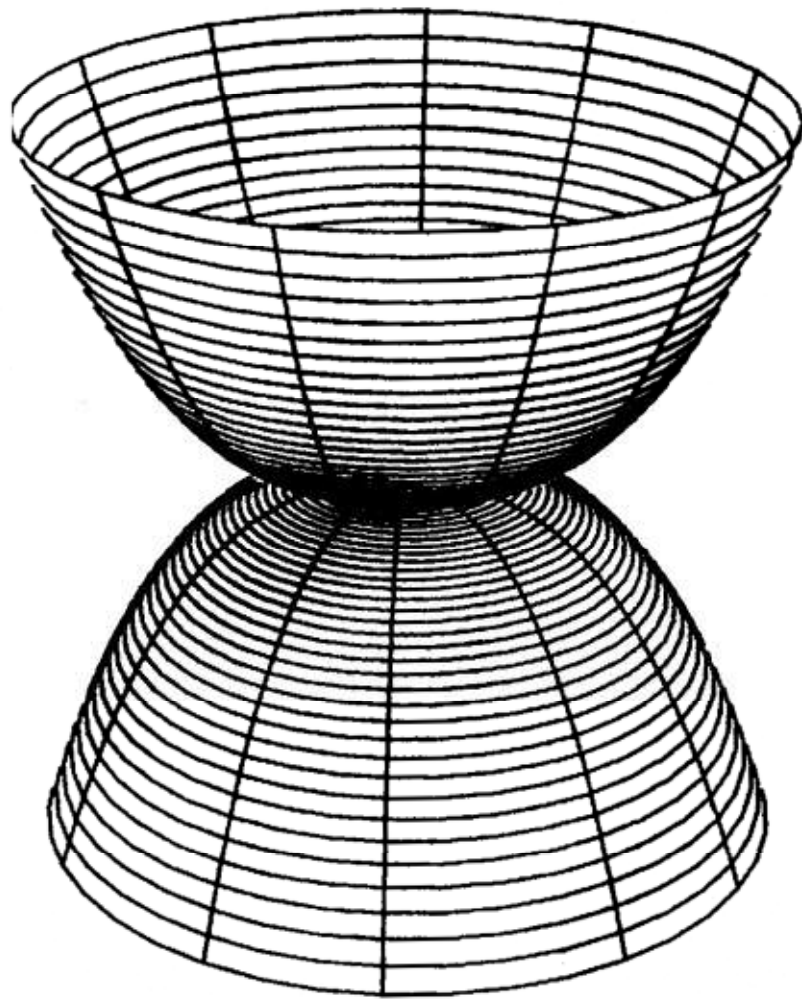
25. SURFACE DE REVOLUTION A MERIDIEN PARABOLIQUE



$$X = V \cos(U) \quad Y = V \sin(U) \quad Z = -\frac{5}{9} (V - 4)^2 + 3$$
$$[0 < U < 2\pi \quad ; \quad 1 < V < 4]$$

26. SURFACE DE REVOLUTION

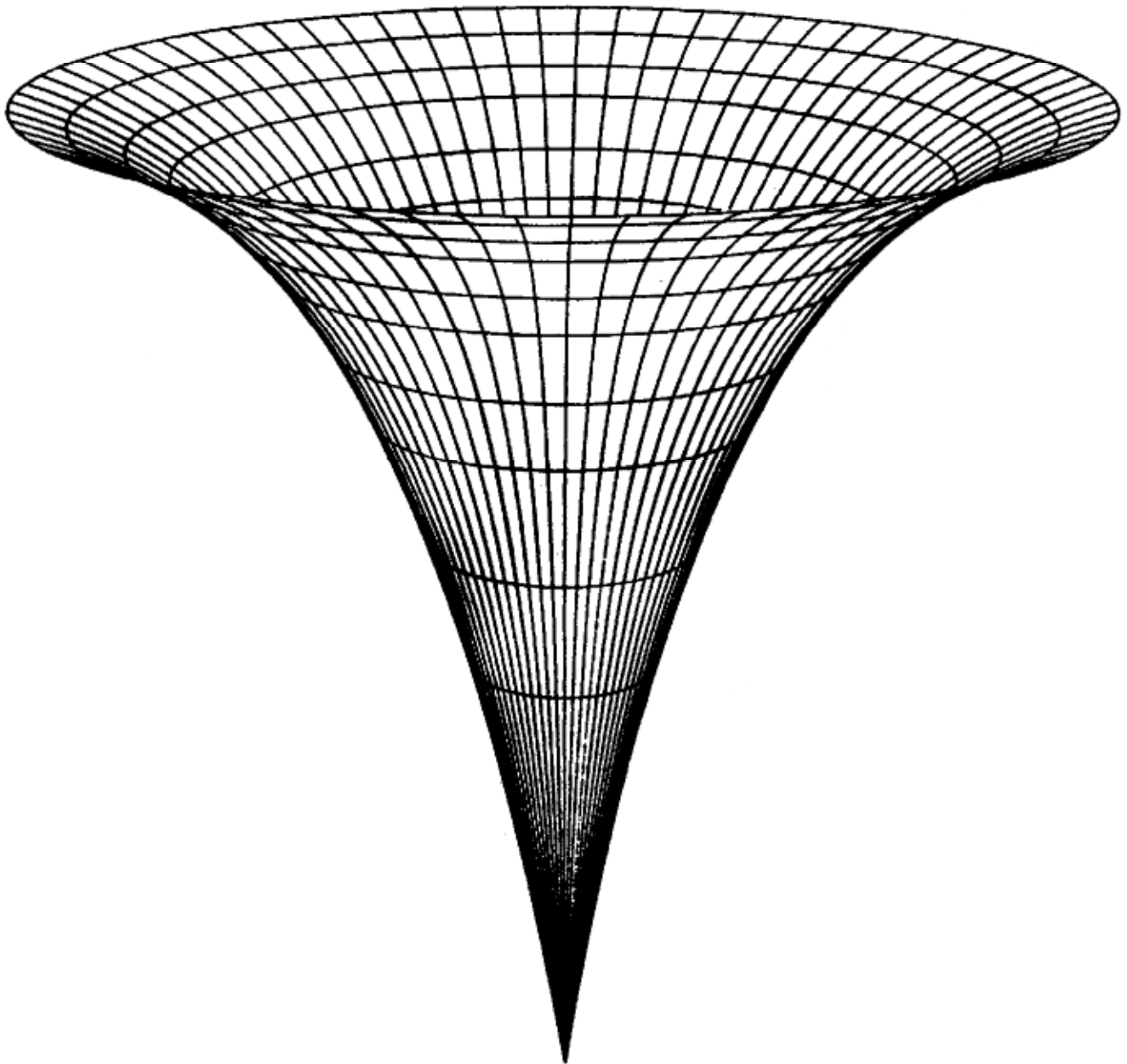
A MERIDIEN CUBIQUE



$$X = U \cos (V) \quad Y = U \sin (V) \quad Z = U^3$$

$$\left[0 \leq U \leq 2\pi \quad ; \quad -2 \leq V \leq 2 \right]$$

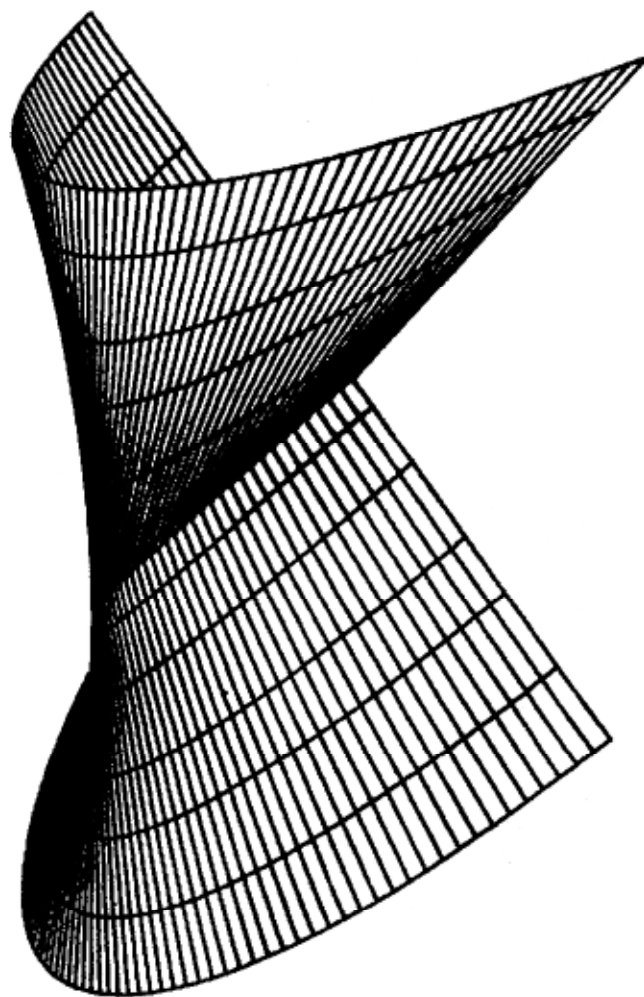
27. SURFACE DE REVOLUTION A MERIDIEN EXPONENTIEL



$$X = V \cos(U) \quad Y = V \sin(U) \quad Z = -8 \exp(-0.6931 V) + 4$$

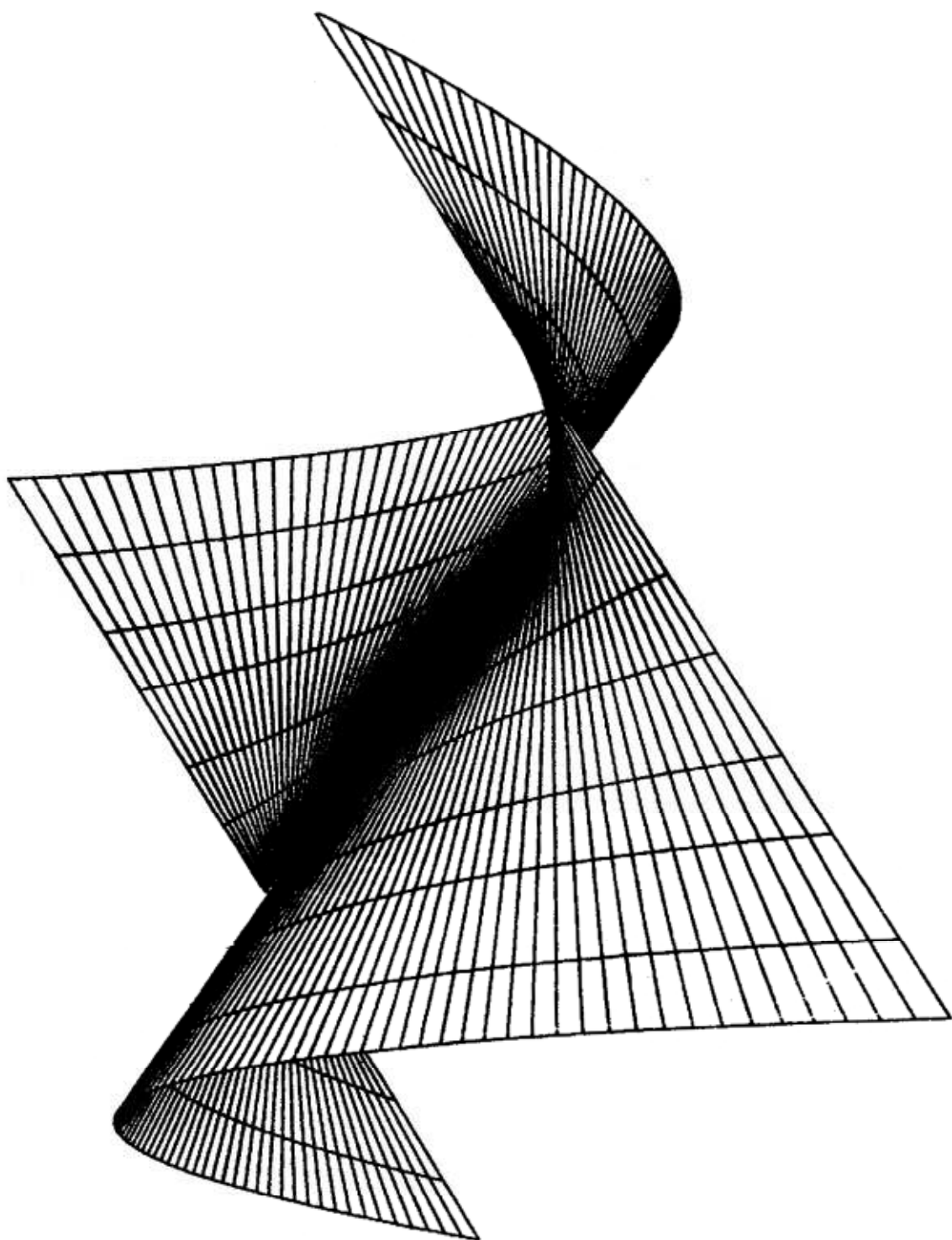
$$[0 < U < 2\pi \quad ; \quad 0 < V < 4.32]$$

28. CONOÏDE DROIT A DIRECTRICE PARABOLIQUE



$$\begin{aligned} X &= -U^2 + 3 & Y &= (1 + V)U & Z &= -3(1 + V) \\ & & & & & [-2.45 \leq U \leq 2.45 ; -2 \leq V \leq 0] \end{aligned}$$

29. CONOIDE DROIT A DIRECTRICE PARABOLIQUE



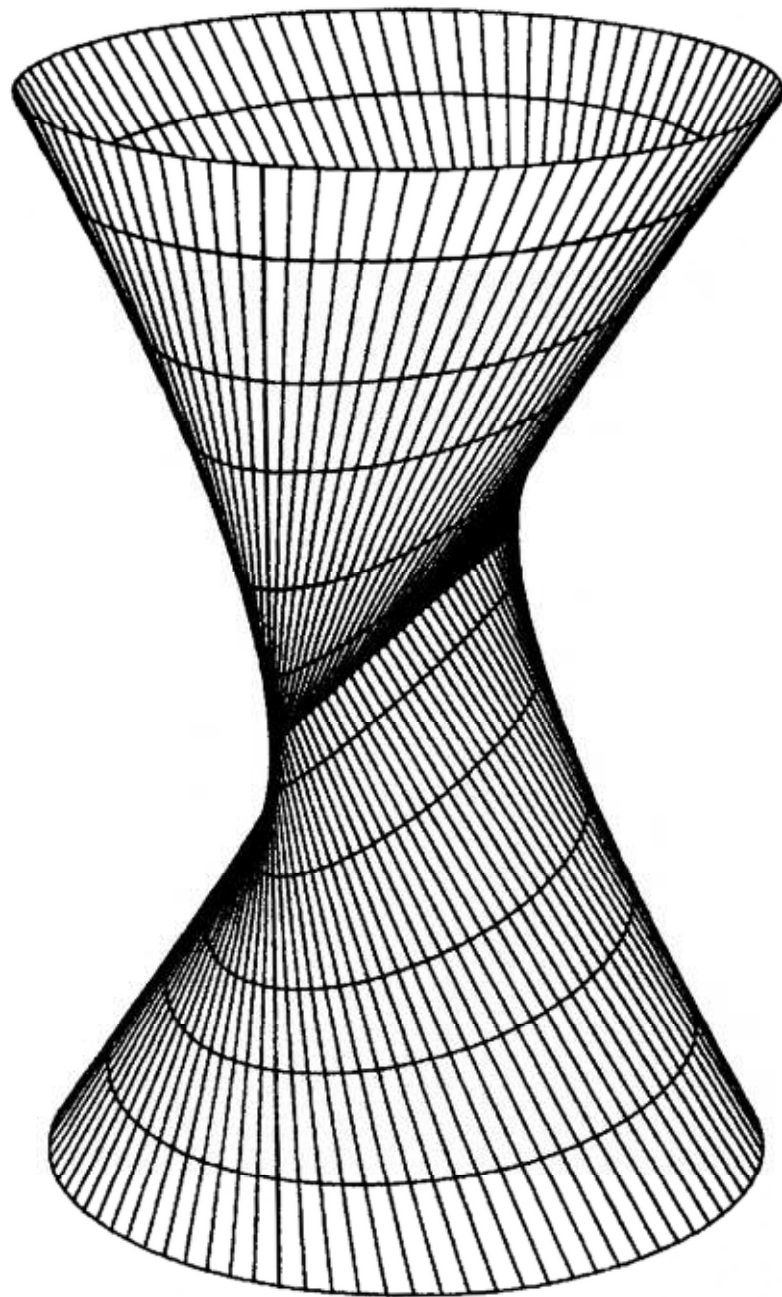
$$X = U$$

$$Y = (1 + V)(U^2/4 - 2) \quad Z = -3(1+V)$$

$$[-4 < U < 4$$

$$-2 < V < 0]$$

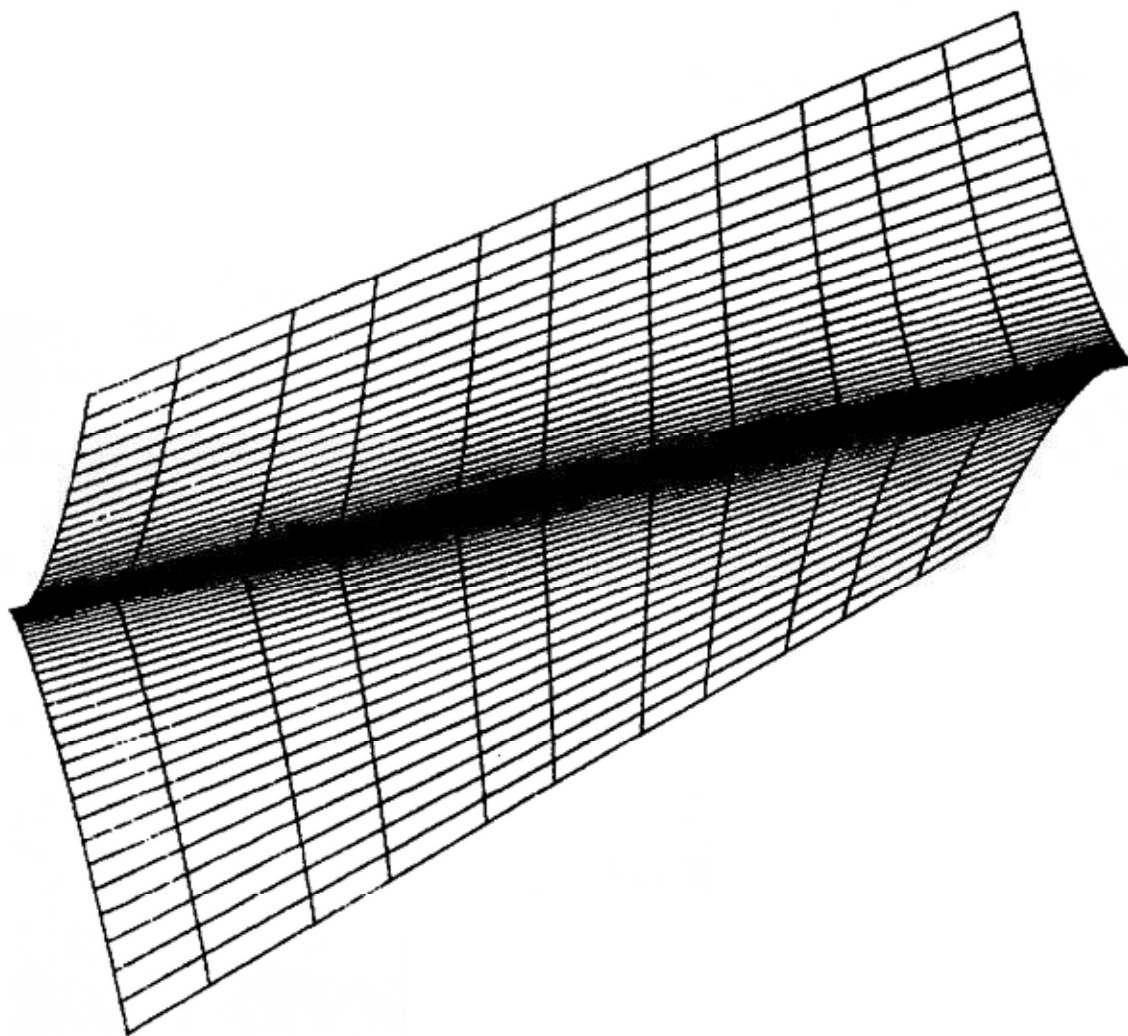
30. CONOIDE DROIT A DIRECTRICE CIRCULAIRE



$$X = 2 \cos(U) \quad Y = 2(1 + V) \sin(U) \quad Z = -3(1 + V)$$

$$[0 \leq U < 2\pi \quad ; \quad -2 < V \leq 0]$$

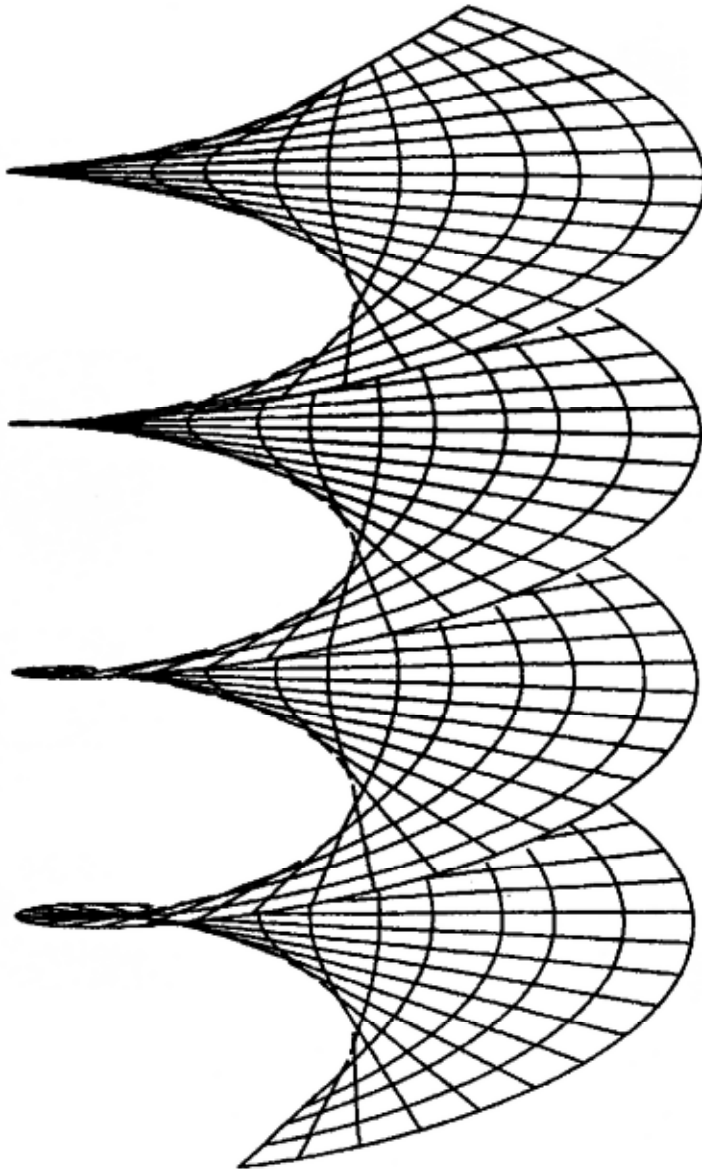
31. CONOIDE DROIT A DIRECTRICE CUBIQUE



$$X = 4(1 - V) \quad Y = U^2 (1 - V) \quad Z = U^3$$

$$\left[-1.26 \leq U \leq 1.26 \quad ; \quad 0 \leq V \leq 2 \right]$$

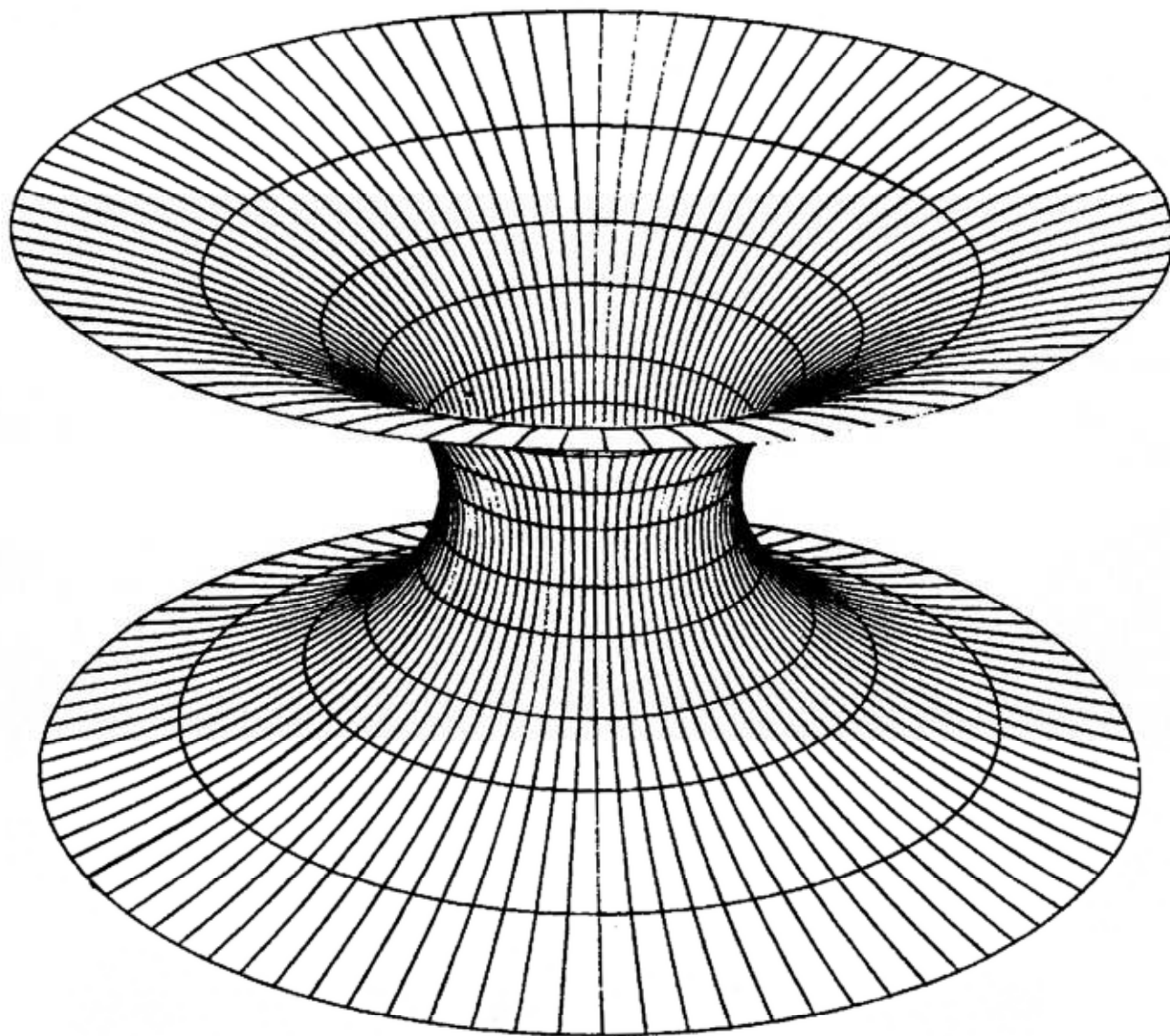
32. HELICOIDE DROIT



$$X = 2\cos(U) - 2V\sin(U) \quad Y = 2\sin(U) + 2V\cos(U) \quad Z = \frac{3}{2\pi}(U+V)$$

$$\left[-6,28 \leq U \leq 6,28 \quad -2 \leq V \leq 2 \right]$$

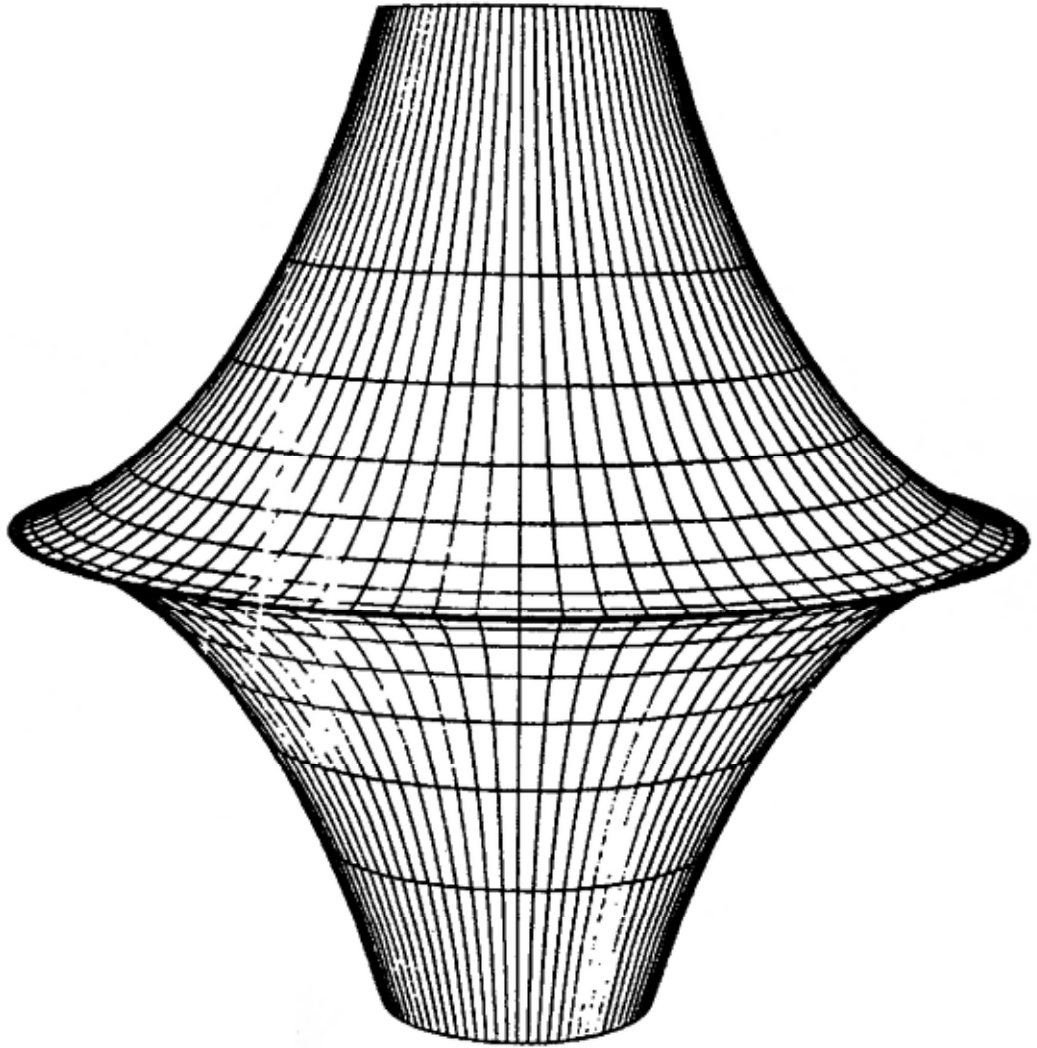
33. CATENOIDE



$$X = \text{CH}(V) \cos(U) \quad Y = \text{CH}(V) \sin(U) \quad Z = V$$

$$\left[0 < U < 2\pi \quad ; \quad -2 < V < 2 \right]$$

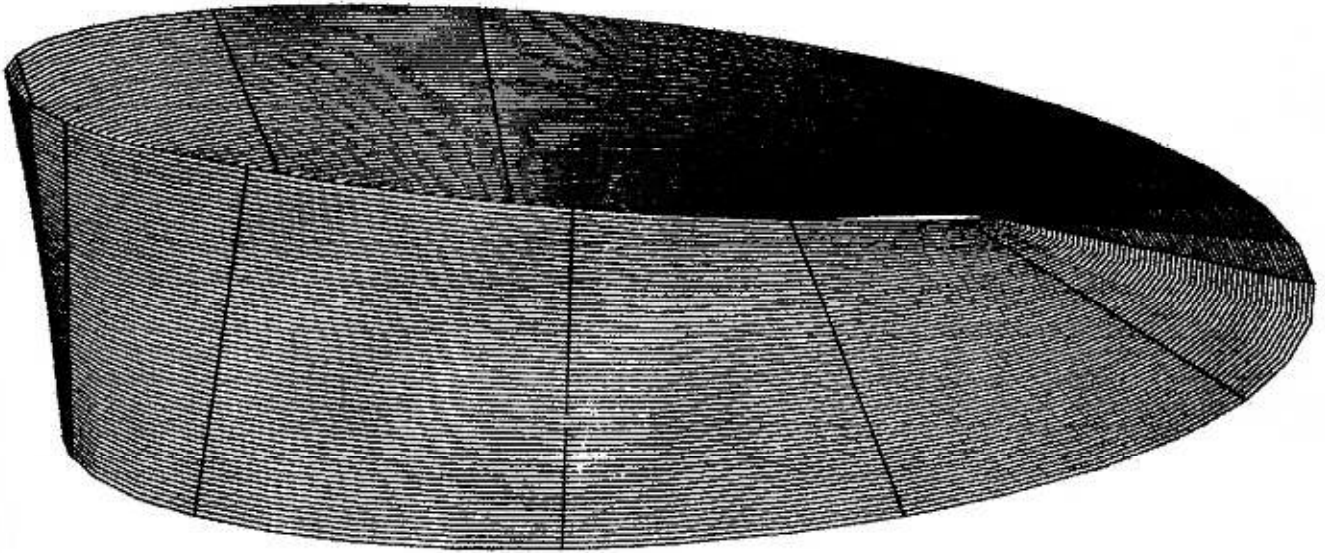
34. PSEUDO-SPHERE



$$X=V\cos(U) \quad Y=V\sin(U) \quad Z= \pm\sqrt{49 - V^2} + 7 \operatorname{LN} \left(\frac{7 \mp \sqrt{49 - V^2}}{V} \right)$$

$$\left[0 \leq U < 2\pi \quad ; \quad -7 \leq V < +7 \right]$$

35. RUBAN DE MÖBIUS



$$X = \cos(U) + V \sin\left(\frac{U}{2}\right) \cos(U)$$

$$Y = \sin(U) + V \sin\left(\frac{U}{2}\right) \sin(U)$$

$$Z = \cos\left(\frac{U}{2}\right)$$

$$\left[0 \leq U \leq 2\pi \right]$$

$$\left[-0.3 < V < 0.3 \right]$$