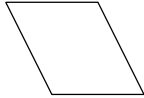
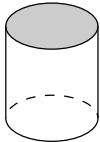
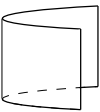


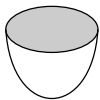
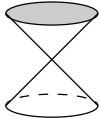

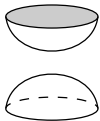


## QUADRIC SURFACES

name	equation in standard form	$x = \text{const}$ cross-section	$y = \text{const}$ cross-section	$z = \text{const}$ cross-section	sketch
plane	$ax + by + cz = d$	line	line	line	
elliptic cylinder	$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$	two lines	two lines	ellipse	
parabolic cylinder	$y = ax^2$	one line	two lines	parabola	
sphere	$x^2 + y^2 + z^2 = d^2$	circle	circle	circle	
ellipsoid	$\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1$	ellipse	ellipse	ellipse	
elliptic paraboloid	$\frac{x^2}{a^2} + \frac{y^2}{b^2} = \frac{z}{c}$	parabola	parabola	ellipse	
elliptic cone	$\frac{x^2}{a^2} + \frac{y^2}{b^2} = \frac{z^2}{c^2}$	two lines if $x = 0$ hyperbola if $x \neq 0$	two lines if $y = 0$ hyperbola if $y \neq 0$	ellipse	
hyperboloid of one sheet	$\frac{x^2}{a^2} + \frac{y^2}{b^2} - \frac{z^2}{c^2} = 1$	hyperbola	hyperbola	ellipse	
hyperboloid of two sheets	$\frac{x^2}{a^2} + \frac{y^2}{b^2} - \frac{z^2}{c^2} = -1$	hyperbola	hyperbola	ellipse	
hyperbolic paraboloid	$\frac{y^2}{b^2} - \frac{x^2}{a^2} = \frac{z}{c}$	parabola	parabola	hyperbola	