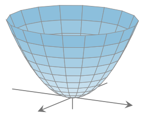
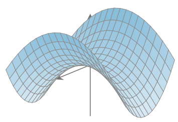
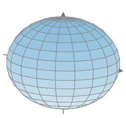
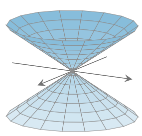
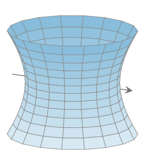
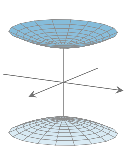
Equation	**Shape**	**$x = c$ slices**	**$y = c$ slices**	**$z = c$ slices**
elliptical paraboloid $z = \frac{x^2}{4} + \frac{y^2}{9}$		$z = \frac{c^2}{4} + \frac{y^2}{9}$ *parabola* opens up	$z = \frac{x^2}{4} + \frac{c^2}{9}$ *parabola* opens up	$\frac{x^2}{4} + \frac{y^2}{9} = c$ *ellipse* point $(0,0,0)$ if $c = 0$
hyperbolic paraboloid $z = \frac{x^2}{4} - \frac{y^2}{9}$		$z = \frac{c^2}{4} - \frac{y^2}{9}$ *parabola* opens down	$z = \frac{x^2}{4} - \frac{c^2}{9}$ *parabola* opens up	$\frac{x^2}{4} - \frac{y^2}{9} = c$ *hyperbola* opens left–right; two lines if $c = 0$
ellipsoid $\frac{x^2}{4} + \frac{y^2}{9} + \frac{z^2}{16} = 1$		$\frac{y^2}{9} + \frac{z^2}{16} = 1 - \frac{c^2}{4}$ *ellipse* point if $c = \pm 2$	$\frac{x^2}{4} + \frac{z^2}{16} = 1 - \frac{c^2}{9}$ *ellipse* point if $c = \pm 3$	$\frac{x^2}{4} + \frac{y^2}{9} = 1 - \frac{c^2}{16}$ *ellipse* point if $c = \pm 4$
elliptic cone $z^2 = \frac{x^2}{4} + \frac{y^2}{9}$		$z^2 - \frac{y^2}{9} = \frac{c^2}{4}$ *hyperbola* opens up–down; two lines if $c = 0$	$z^2 - \frac{x^2}{4} = \frac{c^2}{9}$ *hyperbola* opens up–down; two lines if $c = 0$	$\frac{x^2}{4} + \frac{y^2}{9} = c^2$ *ellipse* point $(0,0,0)$ if $c = 0$
hyperboloid of one sheet $\frac{x^2}{4} + \frac{y^2}{9} - \frac{z^2}{16} = 1$		$\frac{y^2}{9} - \frac{z^2}{16} = 1 - \frac{c^2}{4}$ *hyperbola* opens left–right; two lines if $c = \pm 2$	$\frac{x^2}{4} - \frac{z^2}{16} = 1 - \frac{c^2}{9}$ *hyperbola* opens left–right; two lines if $c = \pm 3$	$\frac{x^2}{4} + \frac{y^2}{9} = 1 + \frac{c^2}{16}$ *ellipse*
hyperboloid of two sheets $\frac{z^2}{16} - \frac{x^2}{4} - \frac{y^2}{9} = 1$		$\frac{z^2}{16} - \frac{y^2}{9} = 1 + \frac{c^2}{4}$ *hyperbola* opens up–down	$\frac{z^2}{16} - \frac{x^2}{4} = 1 + \frac{c^2}{9}$ *hyperbola* opens up–down	$\frac{x^2}{4} + \frac{y^2}{9} = \frac{c^2}{16} - 1$ *ellipse* point if $c = \pm 4$; empty if $\lvert c \rvert < 4$