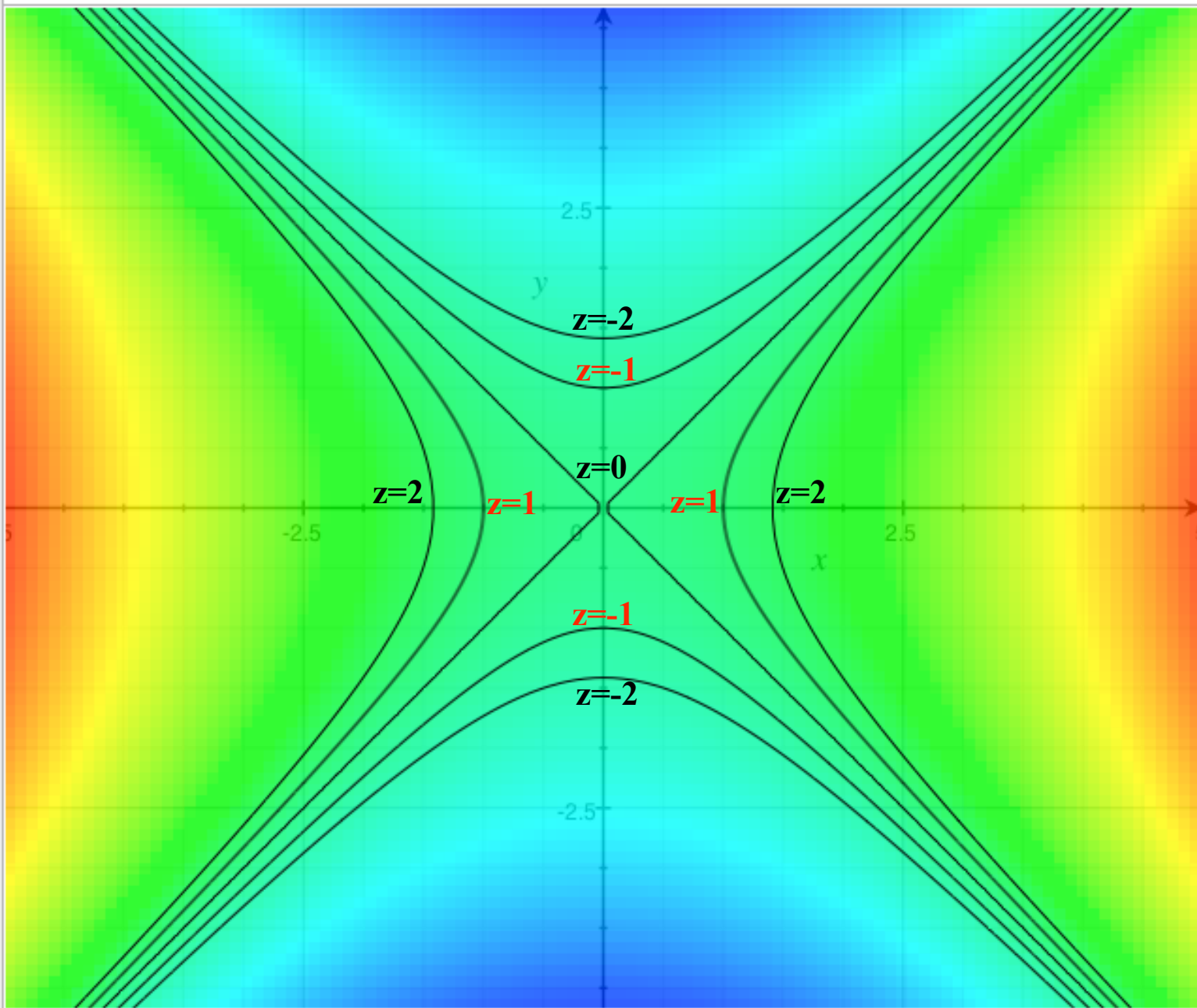
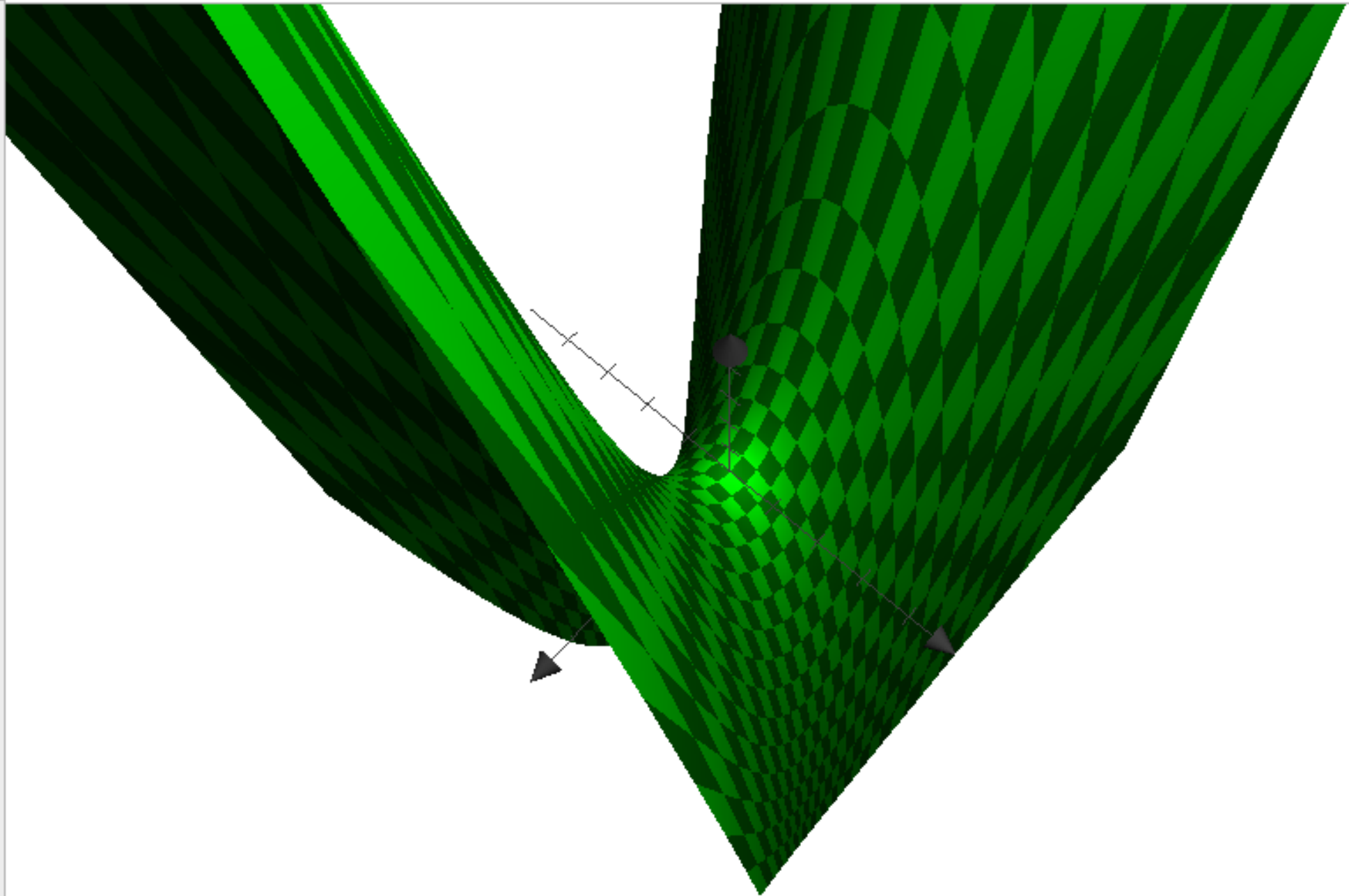


- ▼ $x^2 - y^2$
- $x^2 - y^2$
- $-2 = x^2 - y^2$
- $-1 = x^2 - y^2$
- $0 = x^2 - y^2$
- $1 = x^2 - y^2$
- $2 = x^2 - y^2$
- ▶ $x^2 + y^2$

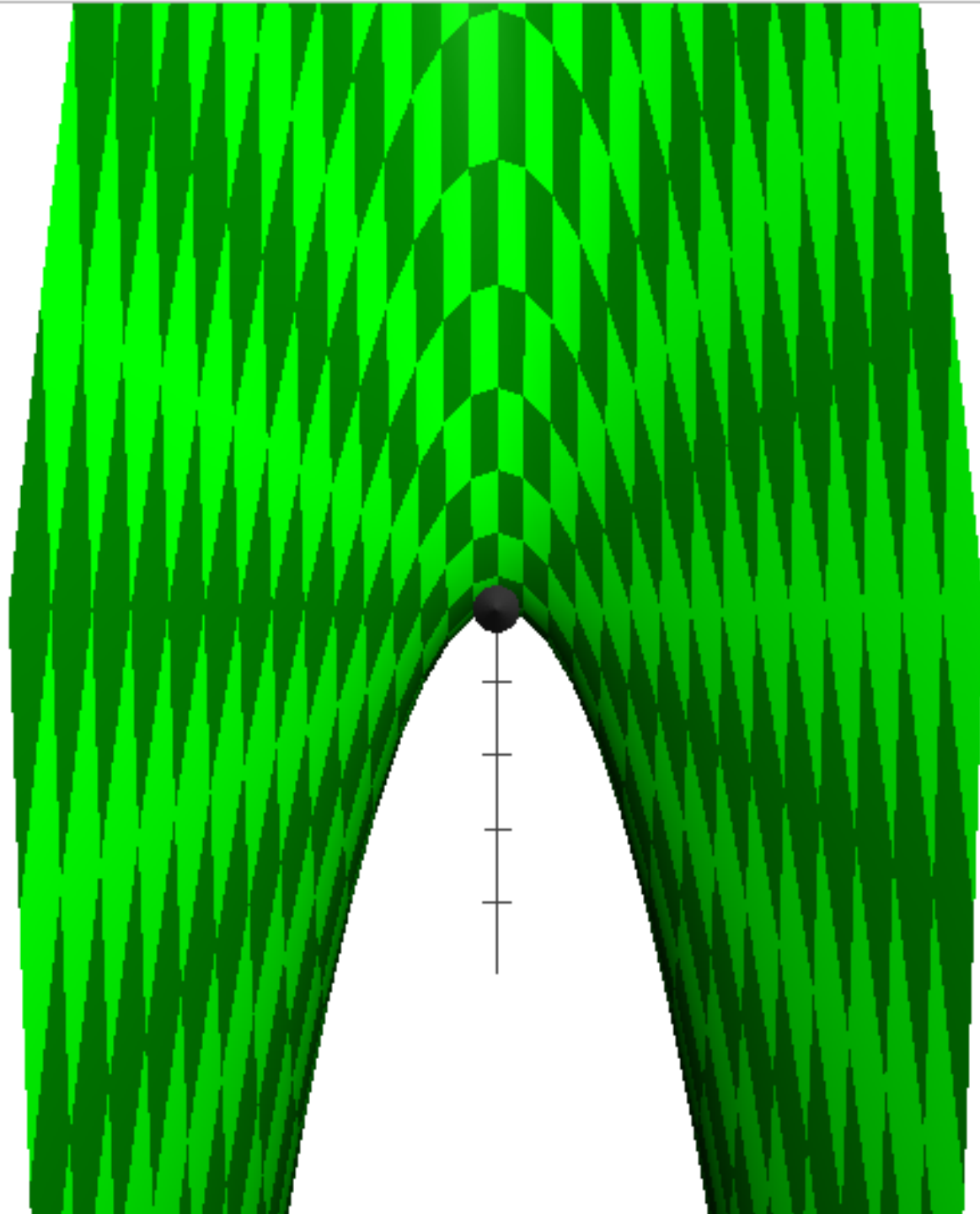
Multiple Equations Selected



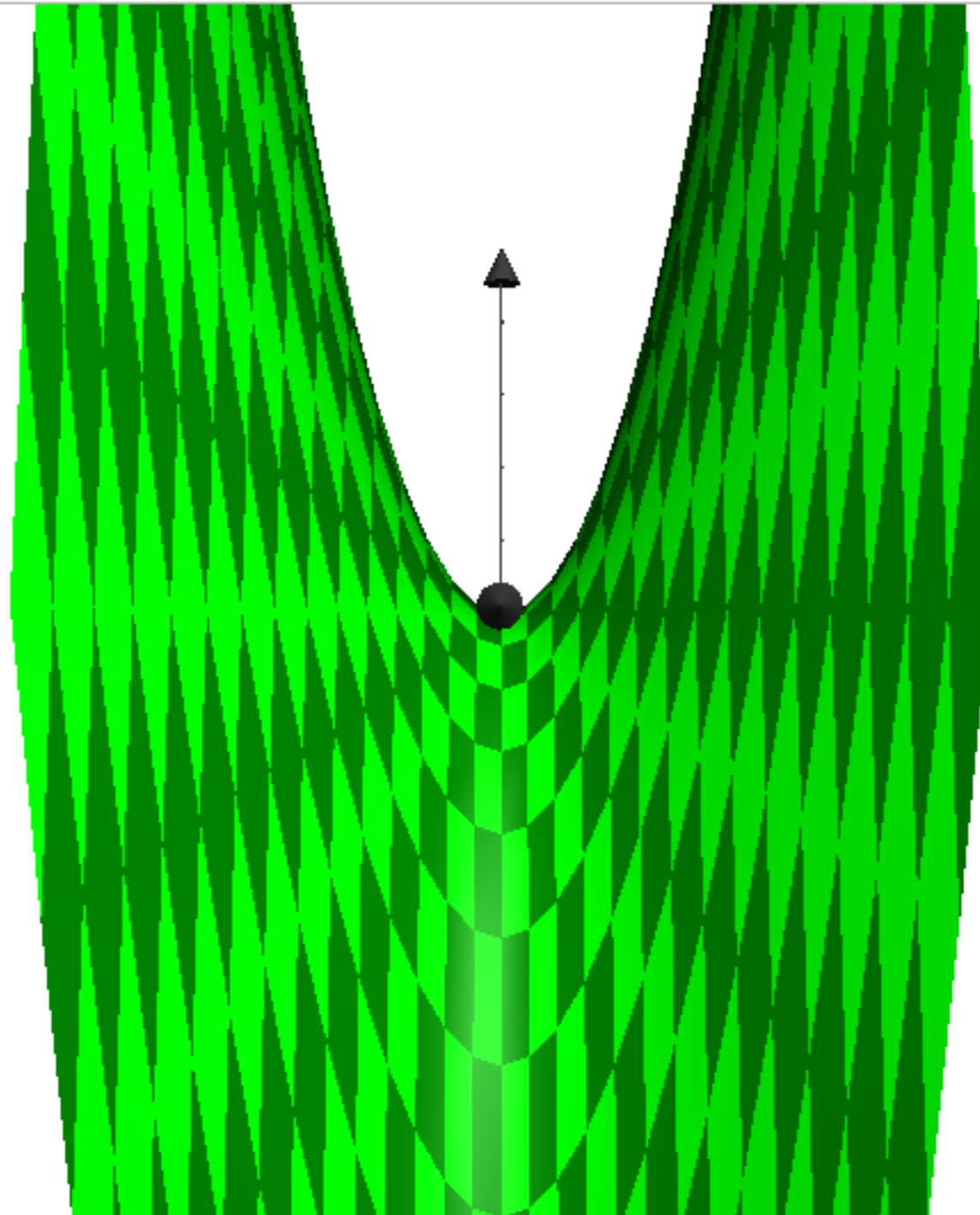
$$z = x^2 - y^2$$



$$z = x^2 - y^2$$

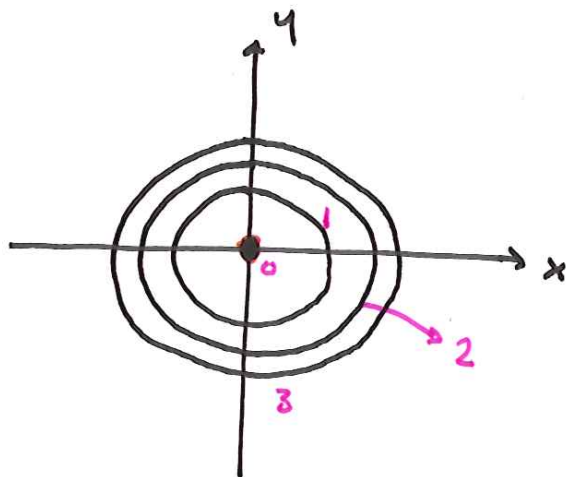


$$z = x^2 - y^2$$

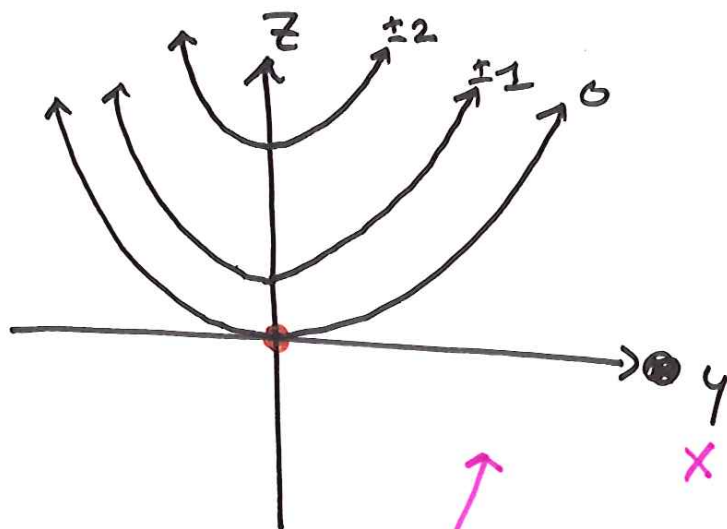


$z = x^2 + y^2$: domain is all (x, y)
 range is all $z \geq 0$

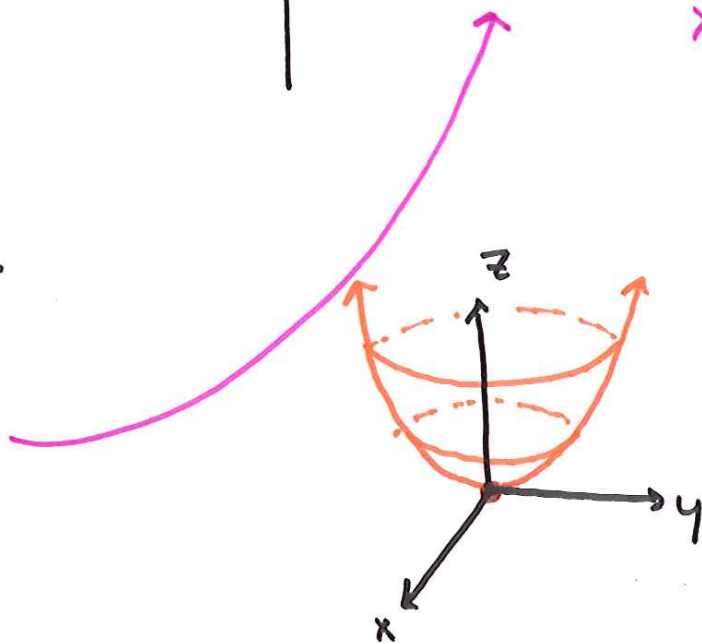
z	$z = x^2 + y^2$
0	$x = y = 0$
1	$1 = x^2 + y^2$ $r = 1$
2	$2 = x^2 + y^2$ $r = \sqrt{2}$
3	$3 = x^2 + y^2$ $r = \sqrt{3}$



x	$z = x^2 + y^2$
0	$z = y^2$
± 1	$z = 1 + y^2$
± 2	$z = 4 + y^2$



y	$z = x^2 + y^2$
0	$z = x^2$
± 1	$z = x^2 + 1$
± 2	$z = x^2 + 4$



$x^2 - y^2$

$x^2 + y^2$

$x^2 + y^2$

$0 = x^2 + y^2$

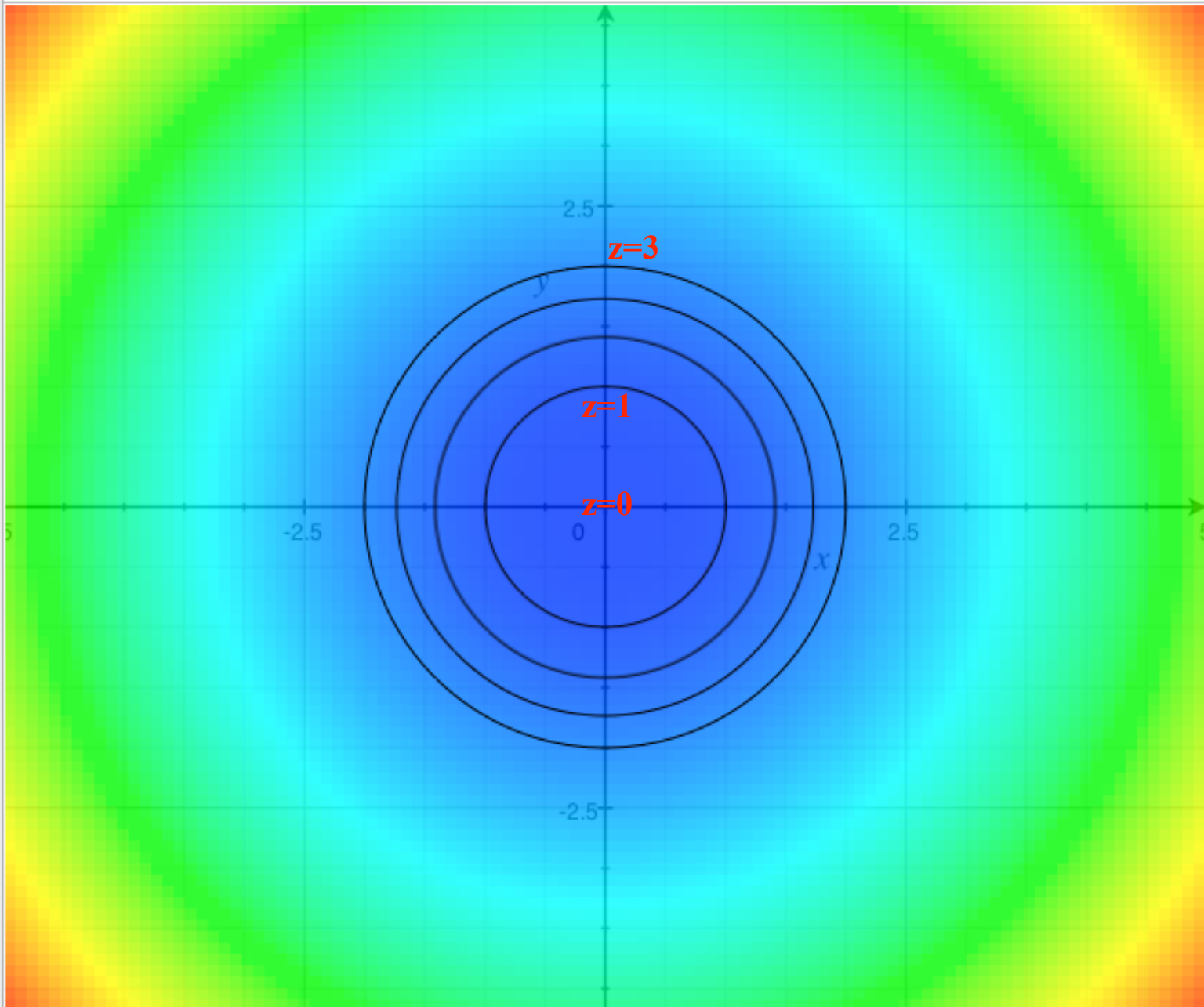
$1 = x^2 + y^2$

$2 = x^2 + y^2$

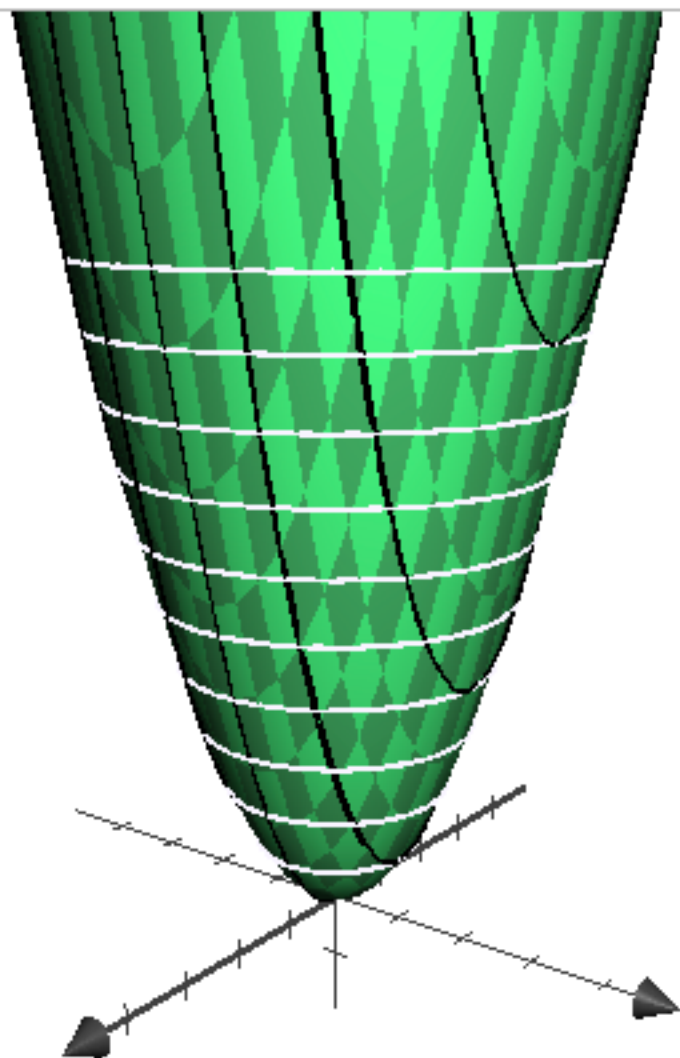
$3 = x^2 + y^2$

$4 = x^2 + y^2$

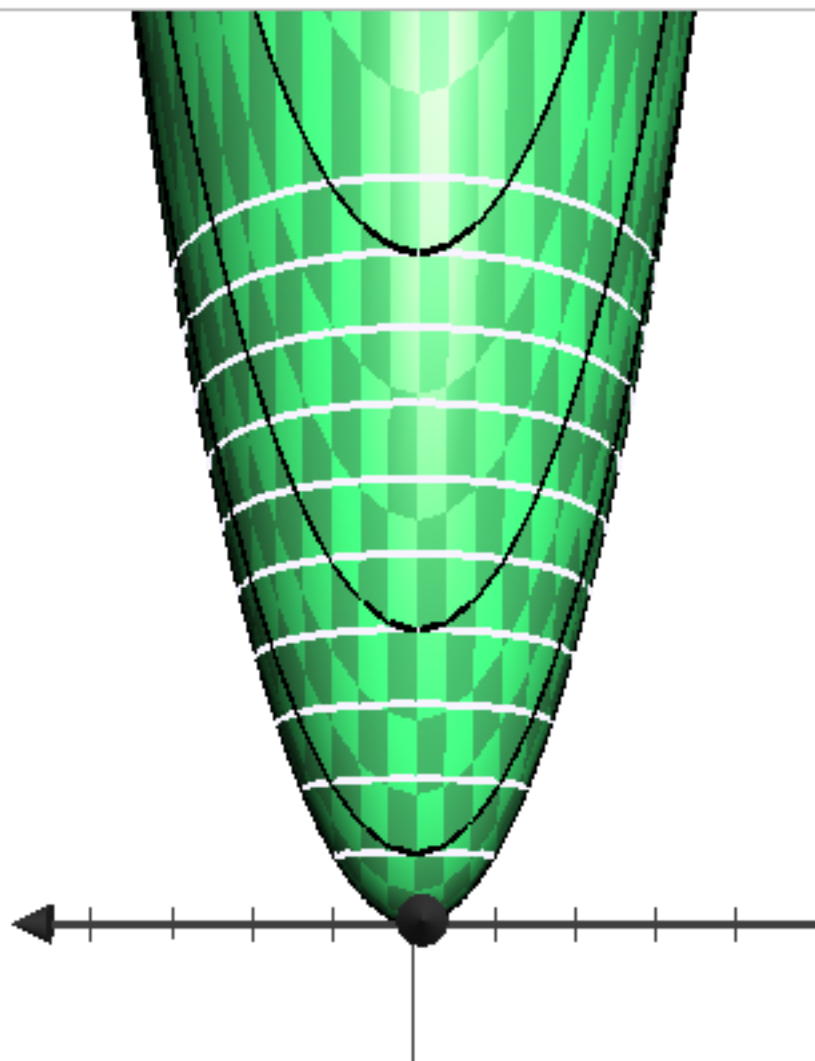
Multiple Equations Selected



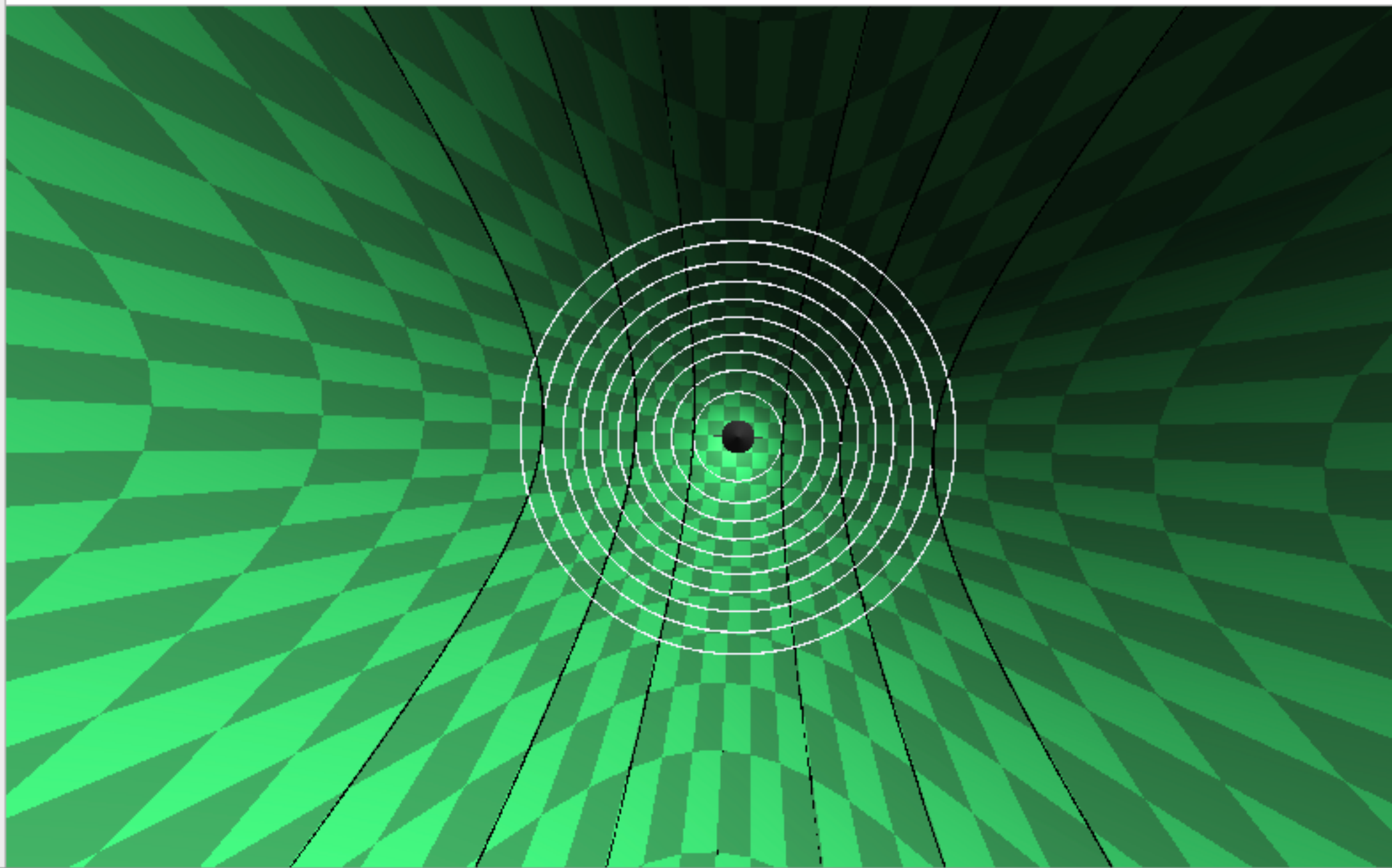
$$z = x^2 + y^2$$



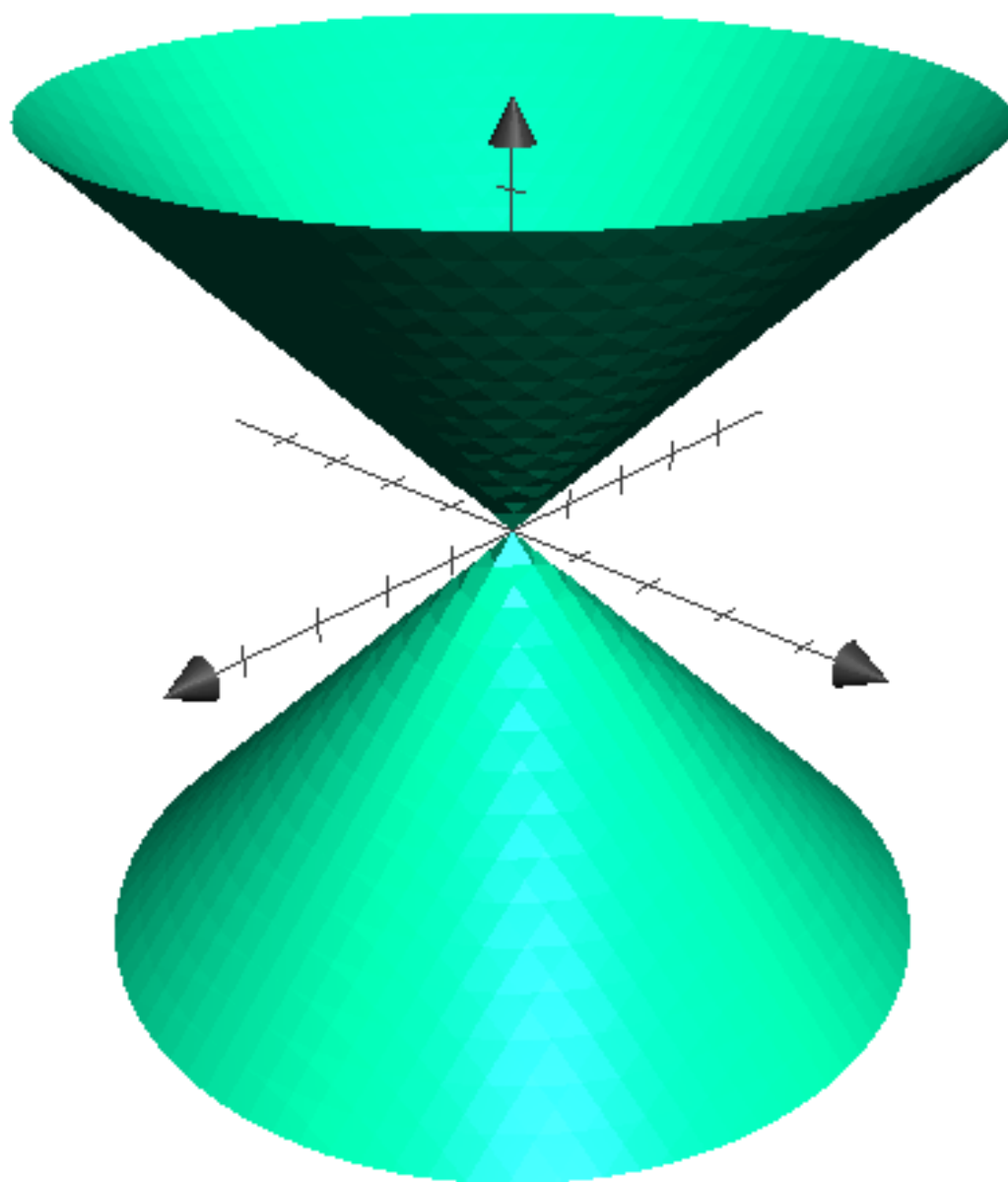
$$z = x^2 + y^2$$



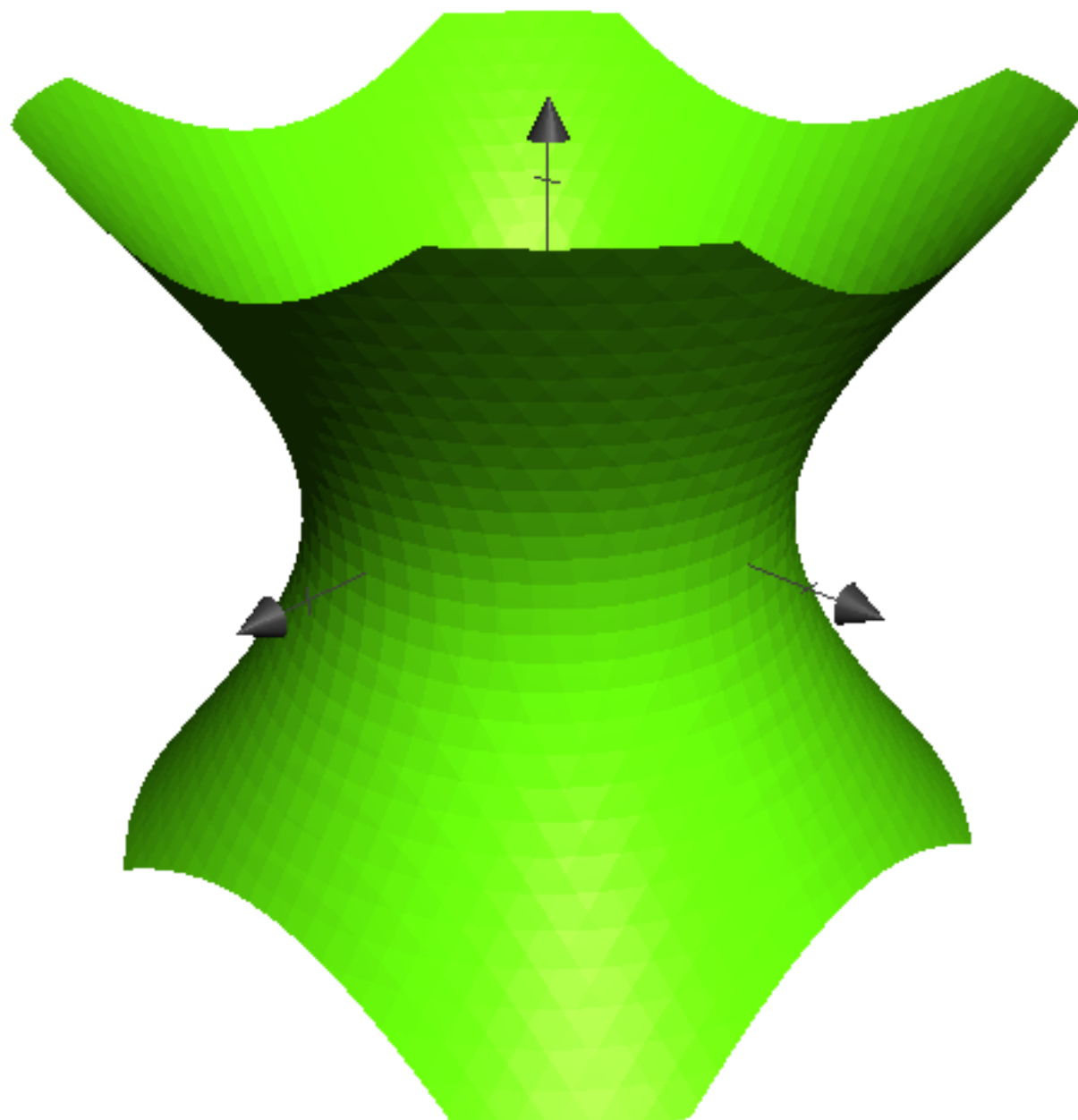
$$z=x^2+y^2$$



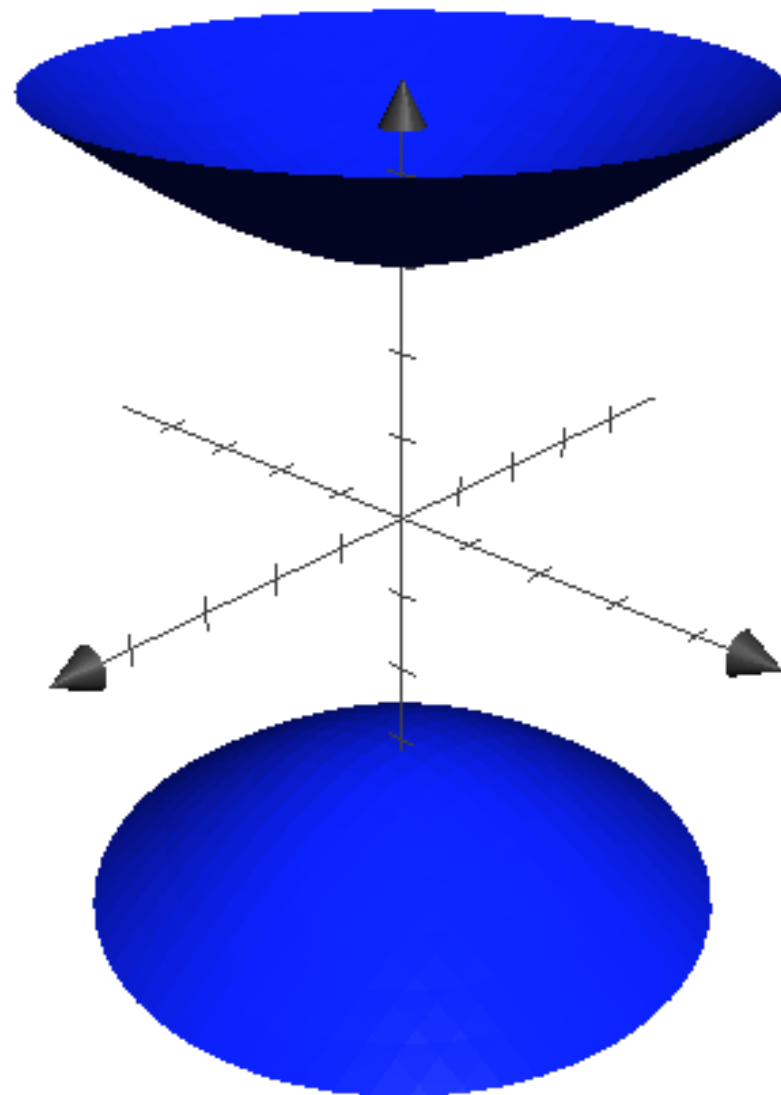
$$x^2 + y^2 - z^2 = 0$$



$$x^2 + y^2 - z^2 = 10$$

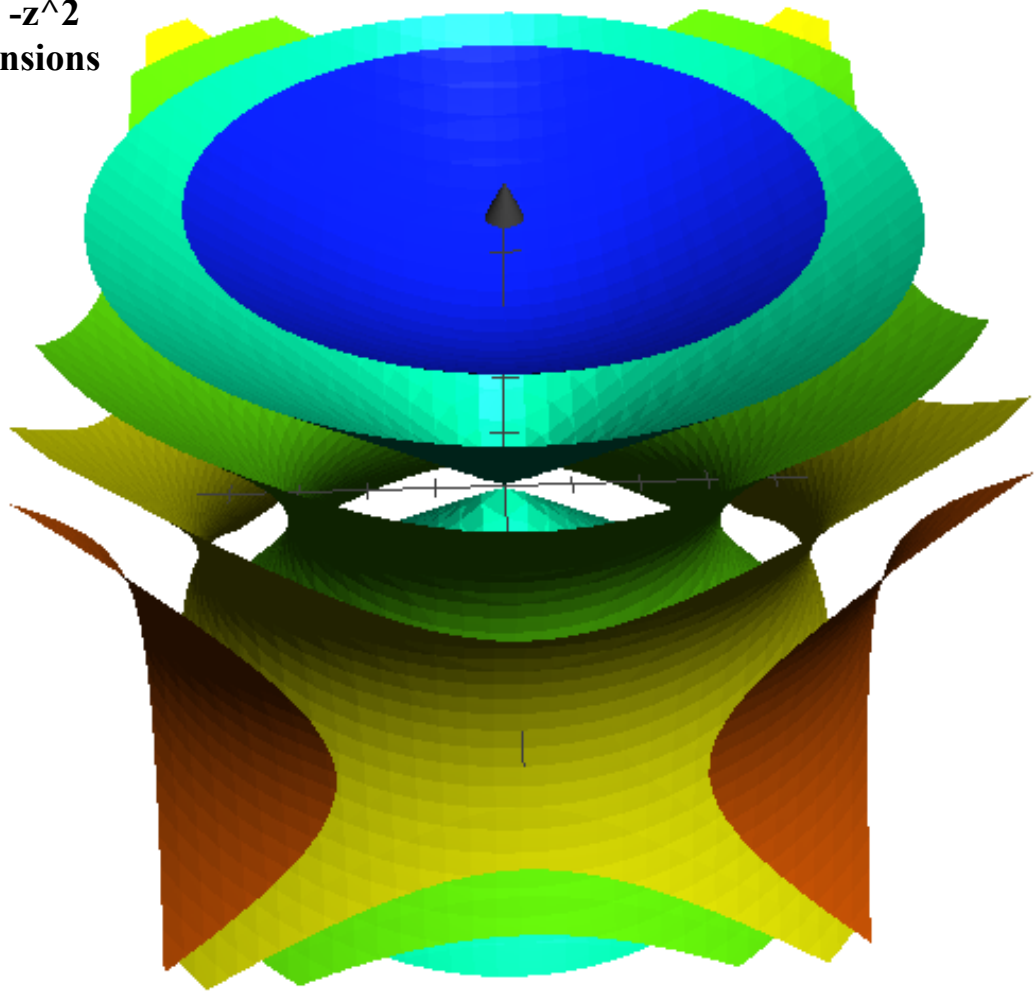


$$x^2 + y^2 - z^2 = -10$$



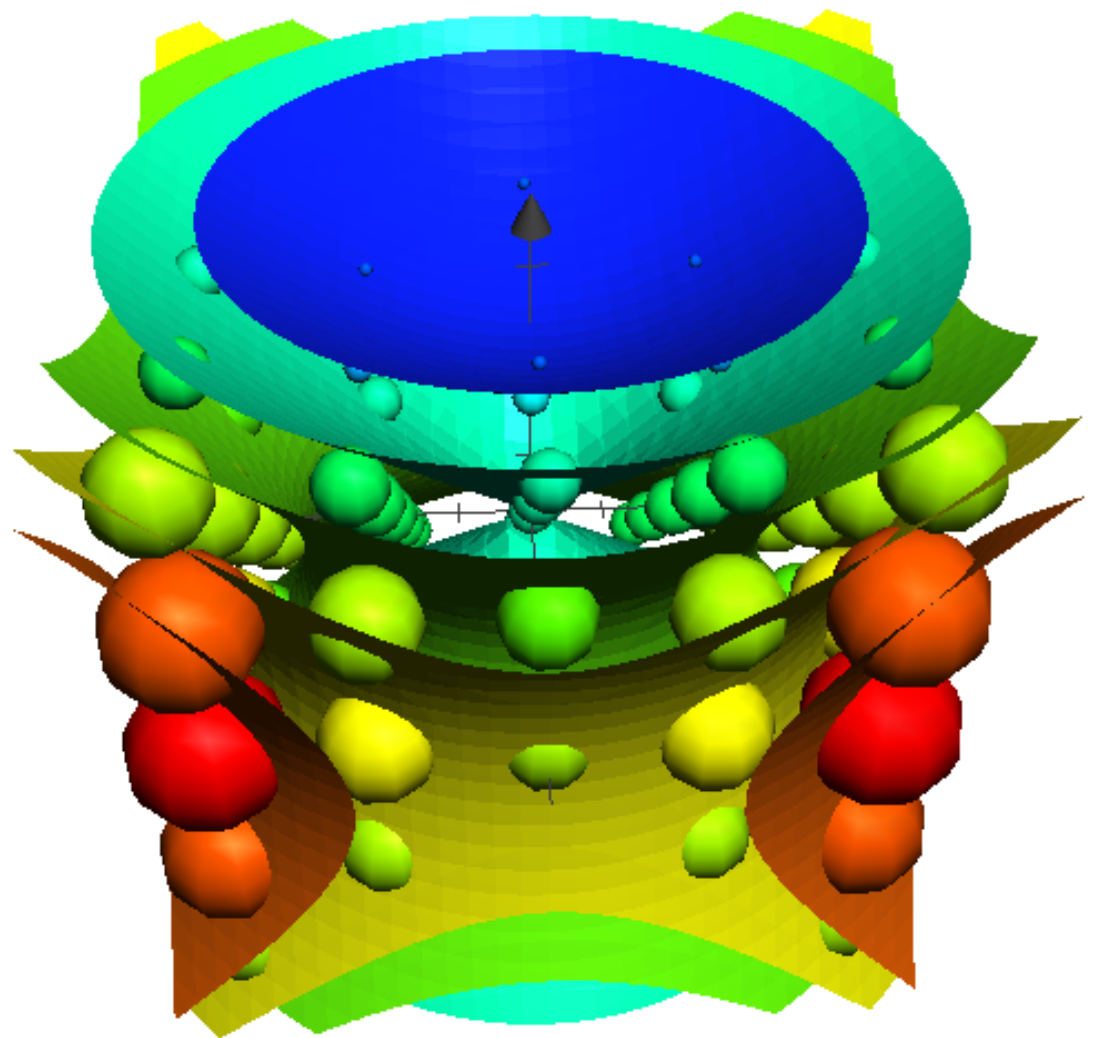
- $x^2+y^2-z^2=-10$ ◆
- $x^2+y^2-z^2=0$ ◆
- $x^2+y^2-z^2=10$ ◆
- $x^2+y^2-z^2=20$ ◆
- $x^2+y^2-z^2=30$ ◆
- $x^2+y^2-z^2$

Seeing the four dimensional graph of
 $t=x^2 + y^2 -z^2$
in three dimensions



- $x^2+y^2-z^2=-10$
- $x^2+y^2-z^2=0$
- $x^2+y^2-z^2=10$
- $x^2+y^2-z^2=20$
- $x^2+y^2-z^2=30$
- $x^2+y^2-z^2$

$$x^2+y^2-z^2$$



$$x^2+y^2-z^2$$

