Ex $f(x,y) = 2x^2 + y^2$.

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

Idea: Take horizontal slices $z = k$ ← constant... for various k.

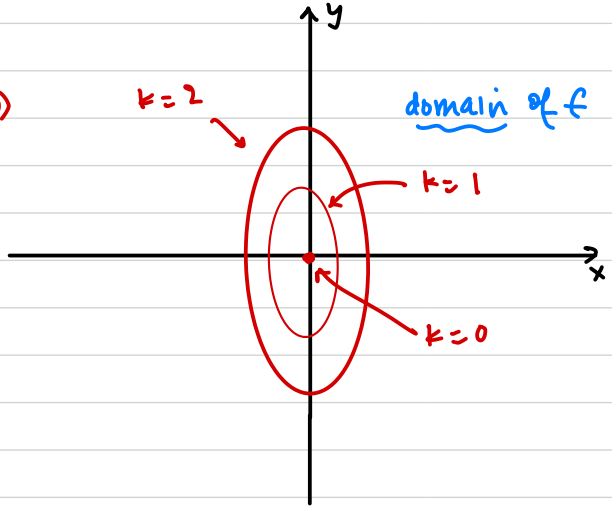
Ex $k = 0$ $\quad 2x^2 + y^2 = 0$

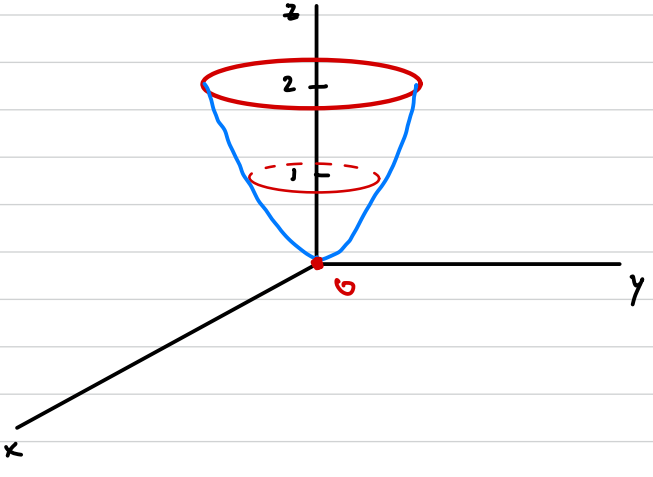
↳ $(x,y) = (0,0)$

output values

$k = 1$ $\quad 2x^2 + y^2 = 1$

$k = 2$ $\quad 2x^2 + y^2 = 2$





xy-plane = domain

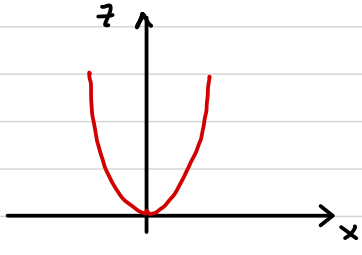
z height gives output value

Note: Can also take x- or y- cross section if it seems easier.

Ex $f(x,y) = 2x^2 + y^2$

↳ set $z = 2x^2 + y^2$

Consider $y = 0$: $z = 2x^2$



Consider $x = 0$: $z = y^2$