We'll start with $z = x^2 + y^2$.
Now I want to add on \( z = f(x, y) \). This is in the \( xy \) plane - well parallel to it. So I'll draw in the lines \( y = \frac{1}{2} \) when \( z = 0 \) and \( z = 1 \).
\( \text{null at } z = 1 \)

\( z = 1, y = \frac{1}{2} \)

\( z = 0, y \geq \frac{1}{2} \)
This has given me a little idea on which
to draw $z = x^2 + \frac{1}{4}$. It should look parabolish
else, when $x = 0$ we should get $z = \frac{1}{4}$. Note though
that when $x = 0$, $z = y^2$
This is the vertex
of the paraboloid.

So the vertex of $z = x^2 + \frac{1}{4}$ should appear
on this part.