

Example. Sketch graphs of the following surfaces in \mathbb{R}^3 .

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

2. $\frac{x^2}{4} + \frac{y^2}{9} = 1$

3. $z = \sin x$

4. $\frac{x^2}{9} + \frac{y^2}{4} + z^2 = 1$

5. $x^2 + y^2 = 1 + z^2$

6. $z^2 = x^2 + y^2 + 1$

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

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