Unit 4: Functions

1 Match the graphs with the functions

- \( f(x, y) = x + y \)
- \( f(x, y) = \sin(x - y) \)
- \( f(x, y) = e^{-x^2+y^2} \)
- \( f(x, y) = |x| + |y| \)
- \( f(x, y) = x/(1 + x^2 + y^2) \)
- \( f(x, y) = e^{-x^2-y^2} \)

2 Sketch the contour map in each case.
Unit 4: Quadrics worksheet

1. What is the name of the following surfaces?

   ![Surfaces A and B](image)
   ![Surfaces C and D](image)
   ![Surfaces E and F](image)

2. Match the implicit equations $g(x, y, z) = 0$ with the surfaces.

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