## 3D Functions

While working in a group make sure you:

- Expect to make mistakes but be sure to reflect/learn from them!
- Are civil and are aware of your impact on others.
- Assume and engage with the strongest argument while assuming best intent.

Definition: A function of two variables is a rule that assigns to each ordered pair of real numbers (x, y) in a set D, a unique real number denoted by f(x, y).

- 1. Determine which of the following define z as a function of x and y. If a function, determine its domain.
  - $z = \ln(xy)$   $z^2 + 4 = x^2 + \frac{y^3}{2}$   $zx = \frac{x+y}{y}$



2. For each of the following, find the domain, range, and match the function with it's level curves.

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$$f(x,y) = y - x \qquad g(x,y) = \sqrt{25 - x^2 - y^2} \qquad h(x,y) = e^{-x^2 - y^2}$$