1. Describe the domain and range of the function.
   (a) $z = \frac{x+y}{xy}$ (b) $f(x,y) = x\sqrt{y}$ (c) $f(x,y) = \frac{e^x - e^y}{e^x + e^y}$ (d) $f(x,y) = \ln(1-xy)$
   (e) $f(x,y,z) = e^{\sqrt{4-(x^2+y^2+z^2)}}$ (f) $f(x,y,z) = \frac{\sqrt{1-x^2}+\sqrt{4-y^2}}{1+\sqrt{9-z^2}}$
   (g) $f(x,y) = \arcsin(x+y)$ (h) $f(x,y) = \arccos(\frac{x}{y})$

2. Let $f(x,y) = 3\,e^{x^2-y-1}$.
   (a) Determine the domain of f.   (b) Determine the range of f.
   (c) Sketch the level curve of f which contains the point $(-2,3)$.

3. Let $f(x,y) = \sqrt{x^2+y}$
   (a) Sketch the domain of f.   (b) Determine the range of f.
   (c) Sketch the level curve of f which contains the point $(-1,3)$.

4. Sketch the graph of the level surface $f(x,y,z) = c$.
   (a) $f(x,y,z) = 4x + y + 2z = c$, $c = 4$ (b) $f(x,y,z) = \sin(x) - z$, $c = 0$
   (c) $f(x,y,z) = x^2 + \frac{1}{4}y^2 - z$, $c = 1$ (d) $f(x,y,z) = x^2 + y^2 + z^2$, $c = 9$