1. Find all critical points of the function $f(x) = \sin(x)^{1/3}$.

2. Find the absolute maximum and minimum values (y-values) of $f(x) = e^{-x^2}$ on the interval $[-2, 3]$, and the locations (x-values) where those values are attained.

3. A ball thrown in the air at time $t = 0$ has a height given by

$$h(t) = h_0 + v_0 t - \frac{1}{2} g_0 t^2$$

meters where t is measured in seconds, h_0 is the height at time 0, v_0 is the velocity (in meters per second) at time 0 and g_0 is the constant acceleration due to gravity (in m/s^2). Assuming $v_0 > 0$, find the time that the ball attains its maximum height. Then find the maximum height.