HW 6.5 – Maximum & minimum

Find the extrema of the function and classify them using the second (partial) derivative test
1 \( f(x,y) = -x^3 + 4xy - 2y^2 + 1 \)
2 \( f(x,y) = x^2 + y^2 + x^2y + 4 \) … also find the absolute max & min on the region defined by \(-1 \leq x \leq 1, -1 \leq y \leq 1\)
3 find the dimensions of the rectangular box with maximum volume such that the total length of its 12 edges is 60cm [set up only. For a challenge, solve it – some of the algebra is tricky]