Mini-project 2. MoM numerical analysis of a parallel-late capacitor.

Consider a capacitor composed of two parallel, rectangular, conductive plates, as presented in lecture. Assume that upper and lower plates are at potentials V_1 = 1 V and V_2 = -1 V, and have same characteristic dimensions *a* = 1 m and *b* = 2 m. Subdivide each of the plates into n * m number of patches, where n = 10 and m = 20. If *d* is the distance between two plates, find and plot:

(1) total charge $Q_{computational}$ on the positively-charged plate and
(2) the ratio of $C_{analytical}/C_{computational}$

for *d/a* ratios of 0.1, 0.5, 1, 2, 10. $Q_{computational}$ is MATLAB-calculated (numerical) total charge, $\underline{C}_{computational}$ is MATLAB-calculated (numerical) capacitance, while $\underline{C}_{analytical}$ is the value for same capacitor, but calculated as in example 2.11 in the textbook.