Problem 1: Consider a distributed load on an infinite half space as shown below:

(a) Compute the stress field $\sigma_{xx}(x,y)$. The best way to do this is via a computer program to integrate numerically or symbolically.
(b) Generate a contour plot of $\sigma_{xx}(x,y)$
Problem 3: Consider the aggregate of identical spheres shown below. Assume that the aggregate is one layer thick in the z direction and that it is periodic so that the centers of the corner spheres have zero x displacement. Compute the effective elastic modulus of the aggregate.

![Diagram of aggregates](image)

Problem 3: Consider the arrangement of spheres shown below loaded only by the selfweight $W$ of each sphere. Consider the walls to be rigid:

(a) Compute the maximum contact stress at point A.
(b) What is the downward displacement of point B?