To solve the problem:

Subject to

I choose matlab and use the function ‘fmincon’ to find minimum of constrained nonlinear multivariable function.

**[x,fval,exitflag,output]=fmincon(@f\_obj,x0,[],[],[],[],[],[],@f\_con,options);**

we need to define objective function(f\_obj) and constrained function(f\_con) , initial point(which can’t be the point that first derivative and second derivative equals to zero), in this experiment, we choose [-1,1].

then we can start iterate and solve this problem, x is the point in which the problem reaches at the minimal value(fval). For this problem, **x = [-1,1] and fval = 8.**