1. Problem 1

Initial guess:

X = [0, 0, 0, 0, 0]

Solution:

X = [[-0.76744186, 0.25581395, 0.62790698, -0.11627907, 0.25581395]

Initial guess:

X = [1, 1, 1, 1, 1]

Solution:

X = [-0.76749312, 0.25583104, 0.62795044, -0.11628835, 0.25583104]

YES, the initial guess produces slightly different solutions.

CODE:

```python
from scipy import optimize
from scipy.optimize import Bounds

def obj(x):
    return (x[0] - x[1])**2 + (x[1] + x[2] - 2)**2 + (x[3] - 1)**2 + (x[4] - 1)**2

def cont1(x):
    return x[0] + 3*x[1]

def cont2(x):
    return x[2] + x[3] - 2*x[4]

def cont3(x):
    return x[1] - x[4]

bnds = ((-10, 10), (-10, 10), (-10, 10), (-10, 10), (-10, 10))

const = ({'type': 'eq', 'fun': cont1},
         {'type': 'eq', 'fun': cont2},
         {'type': 'eq', 'fun': cont3})

# x0 = [0, 0, 0, 0, 0]
x0 = [1, 1, 1, 1, 1]

res = optimize.minimize(obj, x0, bounds=bnds, constraints=const)

print(res)
```