

```
import numpy as np

import statsmodels.api as sm

y = [1,2,3,4,3,4,5,4,5,5,4,5,4,5,4,5,6,5,4,5,4,3,4]

x = [
    [4,2,3,4,5,4,5,6,7,4,8,9,8,8,6,6,5,5,5,5,5,5],
    [4,1,2,3,4,5,6,7,5,8,7,8,7,8,7,8,7,7,7,7,7,6,5],
    [4,1,2,5,6,7,8,9,7,8,7,8,7,7,7,7,7,7,6,6,4,4,4]
]

def reg_m(y, x):
    ones = np.ones(len(x[0]))
    X = sm.add_constant(np.column_stack((x[0], ones)))
    for ele in x[1:]:
        X = sm.add_constant(np.column_stack((ele, X)))
    results = sm.OLS(y, X).fit()
    return results
```