```
 1 /usr/local/bin/python3.8 "/Users/lily/OneDrive - University of Toronto/CSC311/project
   /part_a/item_response.py"
 2 theta:
 3 [-1.49768430e-01  3.96174443e-01  2.25108681e-01  2.64464111e-01
 4   1.76548581e-01 -1.53250819e-01  1.14058390e-01  6.07425415e-01
 5  -6.38748870e-02  7.25982845e-01  2.36145676e-01  8.32887950e-01
 6   1.70383997e+00 -3.20627947e-01 -3.70428867e-01  3.20400259e-01
 7  -1.02266513e-01 -9.14408157e-01  6.00079926e-01  3.66000532e-01
 8  -7.55787341e-04 -3.60323002e-02  3.82740884e-01  3.06363209e-01
 9   6.61945307e-01  8.36771421e-01  6.48593986e-01  1.15264495e+00
10   4.54767757e-01  2.67644990e-02 -8.68296805e-01  6.14564365e-01
11  -1.56735874e-01 -6.25320473e-02  1.01406355e-01  6.69655682e-01
12   8.55465669e-01  1.35947950e+00  1.57465930e-01  1.57245724e+00
13  -6.65285176e-01  3.48106743e-01 -8.47685991e-01  4.56993629e-01
14   1.16880081e+00  1.64432205e-01  8.88211189e-01  4.19352661e-01
15   1.50368375e-01 -1.26326584e+00  4.72785361e-01  1.86076370e-01
16  -4.67648820e-01  4.05777027e-01  6.43568590e-01 -4.79549032e-02
17  -4.71958082e-01  1.83242384e+00 -8.43618130e-02  1.40971037e+00
18   5.03841212e-01  1.07775100e+00 -8.92196348e-01  1.19038939e+00
19  -8.78272139e-01  7.41826869e-01  2.41223676e+00 -3.26380537e-01
20   1.01853328e-01  4.03951613e-02  2.41789241e-01  5.64125912e-01
21   4.10956779e-01  1.29642100e+00 -1.42982310e-03  7.60089295e-01
22   2.33546821e-01  7.47860010e-01  3.93474331e-01 -4.27069680e-03
23   5.78591662e-01 -9.76449966e-01 -5.55831328e-01  1.12312687e-01
24   1.95003146e-01  5.67142175e-01  5.87103682e-01  6.36007438e-01
25   2.64136093e-01  2.14420977e-01  1.71598096e-01  2.39734292e-01
26   4.68212342e-01 -7.85903248e-01  8.91190908e-01 -4.03339550e-01
27   5.65002282e-01  4.71920612e-01 -6.87879340e-01  7.94998530e-01
28  -2.44906873e-01  1.71813595e+00 -8.81422131e-01  7.39414142e-02
29   2.42988325e-01 -2.74922583e-01  1.95077831e+00  3.38734863e-01
30  -1.45412155e-01 -9.04966580e-02  3.16378823e-01  6.88765813e-01
31   3.43795173e-01 -1.46936927e-01  1.55802035e+00 -8.88070982e-01
32   1.50654063e+00 -2.36411541e-01  7.51558554e-01  1.47027847e+00
33  -7.88527378e-01  6.81954838e-01  5.29015169e-01  1.94178772e+00
34  -7.23079136e-01 -5.28037734e-02  3.77754456e-01  2.20109821e-01
35  -4.74413045e-01  4.20625597e-01  7.44071690e-01  8.55760763e-02
36   5.36890191e-01 -3.46939468e-01  2.18933336e-01 -2.31882917e-01
37   5.59158915e-01  6.50362919e-01  1.71616781e+00  8.82506940e-02
38  -4.13833816e-02  1.03282123e+00 -6.39125118e-01  1.55890081e+00
39   6.73017961e-01 -5.64098722e-02  1.14695675e+00 -4.77020318e-01
40   1.46985751e+00 -9.71807580e-01  3.53760513e-01  4.53293171e-01
41   2.17890858e-01  1.24747768e+00 -9.01299307e-02  1.27638651e+00
42   8.98971873e-01  2.60282482e+00  5.67833461e-01 -5.55786317e-01
43  -3.73064897e-01 -4.12881749e-01  1.46395818e+00  1.35761284e+00
44  -3.50300835e-01 -1.09562801e+00 -5.22560241e-01 -7.06843673e-01
45   1.86205052e+00 -6.70362679e-01 -3.01592467e-01  1.42204703e-01
46  -3.63809269e-02 -8.14313510e-01 -6.95697272e-01  6.92176088e-01
47  -1.84502726e-01  6.46875007e-01  1.06717214e+00 -4.14115806e-01
48   1.59824774e+00  1.63913374e-01  4.10056474e-01  6.43787932e-01
49   1.62305164e-01 -1.06651563e+00 -4.99657376e-01 -7.22340997e-01
50  -1.11461255e+00 -1.03062792e+00  1.77021921e+00  1.09992118e-01
51   7.73790361e-01 -9.13716921e-01 -1.14854155e+00 -1.95681265e-01
52   1.31591727e+00 -8.82134716e-01  3.36400984e-01 -5.07880525e-01
53   2.36666761e-01  1.11882720e+00 -4.42316488e-01 -7.29231723e-01
54   1.93234701e-01  8.04682002e-01 -2.47431265e-01  5.09904446e-01
55   2.40994789e-01  1.89498679e-01 -1.20695944e+00  6.11338269e-01
56  -8.74234603e-01 -2.81561929e-01 -1.52992342e-01  4.97105056e-01
57   8.55229364e-02 -1.44224142e-01 -4.92731407e-01 -6.44268350e-01
58   2.83864375e-01 -6.91961037e-01  9.53562350e-01  3.34379891e-01
59  -5.00334597e-01 -7.23227060e-01  4.38311911e-01 -6.12155248e-01
60   3.25537085e-01  6.80364207e-01  3.26844766e-01  2.24104426e+00
61  -3.99608365e-01  2.09443717e-01  1.13332813e+00  4.65788212e-01
62  -3.43161652e-01  1.54321609e+00  1.59068679e-01 -2.19392090e-01
63   2.60058365e+00 -1.33143718e-01 -1.16577915e+00  6.76587612e-01
64  -1.04394380e+00 -6.34989275e-01  1.41200121e+00  2.12635023e-01
65  -4.31680256e-01  2.06116146e-01 -6.63639944e-01  1.66221983e+00
66  -1.38804434e-01  8.07019219e-01  1.81039558e+00  1.79108557e+00
67   7.07642268e-01  3.84048898e-01 -3.50012099e-01  6.45936890e-01
68   1.05406200e+00  5.14112101e-01  9.30093374e-01  1.46958114e+00
69   1.65446352e+00 -5.13084224e-01  6.50607827e-01  7.51049524e-01
70   4.07344527e-01  2.23453188e-01  5.89152872e-01  1.99047082e+00
```

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 71    1.72981079e-02   7.18931964e-01   1.89786787e+00   9.53118232e-01
 72    4.91662225e-01  -5.73519391e-01  -8.13301666e-01   7.45759035e-01
 73    1.84417242e+00   1.83882658e-01   9.51863952e-01   1.33320132e+00
 74   -8.43923913e-01   5.69775394e-01  -6.66242793e-01  -2.18599045e-01
 75    1.68776681e-01  -2.70862304e-01   7.63561503e-01   1.29964232e+00
 76    9.45358938e-01   9.92494016e-01   8.50664345e-01   1.57929499e+00
 77    1.28830312e+00   1.53876840e+00   5.06912171e-01   1.90497191e-01
 78    1.69870118e+00   4.57326601e-01   5.41366914e-01  -3.04538956e-01
 79    5.02144232e-01   1.36920516e+00   3.44703508e-01  -2.39103539e-01
 80   -6.49367001e-01  -2.91308865e-01  -1.51300287e-01   1.82699442e+00
 81   -6.01790201e-01  -5.68528408e-01  -1.00901477e-01   5.45491931e-01
 82    5.42973223e-01  -3.18186261e-01   1.51387768e-01   5.91838085e-01
 83    5.63758897e-01   4.82398096e-01  -1.58766468e-01   1.60395373e-02
 84    8.62663058e-02  -3.39927120e-01   9.65714018e-01   3.93982383e-01
 85    8.70515713e-01   2.70871035e-01   1.72009252e+00   6.06910836e-01
 86   -1.34150016e-01   1.34639975e+00   5.60347671e-01   5.39521483e-01
 87    9.74163185e-01   2.20485420e+00   2.63607164e-01  -3.21076544e-01
 88    5.14526738e-01  -4.51396610e-01   1.11353067e+00  -2.71977916e-01
 89   -1.14849752e+00   2.50403751e-01   8.03937217e-01  -8.64797297e-01
 90    2.66044890e-03  -9.89713632e-02   9.38143603e-01   2.13637004e-01
 91    9.98140089e-01  -5.03540868e-01   1.27302895e+00   6.52342525e-01
 92    1.45463358e+00  -2.75320829e-02   6.24443688e-01   1.15745652e+00
 93   -2.15461181e-01   3.52565134e-01  -1.12711539e-01   1.12881233e+00
 94    4.27011388e-02  -1.17422280e-01  -3.08639679e-01  -2.80228011e-01
 95    2.29397421e-01  -2.16861858e-01  -8.00565193e-02   4.59279501e-01
 96   -2.88763627e-01  -2.27253887e-01  -3.58817047e-02   2.09280032e-01
 97    1.91604490e-01  -2.81189003e-01   3.34427564e-01  -5.18761066e-02
 98    7.37990506e-01   2.45924421e-01  -2.74130599e-02   1.37836360e-02
 99    1.12976909e-01   1.38300175e-01   4.22237675e-01  -4.76190732e-01
100    7.36213235e-01   1.98410298e-01   1.05075619e+00   3.69678445e-01
101    7.78383300e-01  -2.25455481e-01  -2.07602177e-01  -1.09060881e+00
102    1.06564902e+00   7.61431526e-01   3.04083796e-01  -1.58548216e-01
103    5.32036282e-01   2.92157740e-01   4.41553562e-01  -3.61326461e-01
104    2.77201085e-01   4.87958200e-01  -1.46660659e-01  -4.52393458e-01
105    6.33808507e-01   4.01098403e-01   1.23649174e+00   6.84639738e-01
106    5.41573187e-01   1.64497274e-01   1.01635229e+00   9.66262656e-02
107    2.87165854e-01  -4.75265741e-01   3.01275695e-01   1.69119600e-01
108   -2.76748719e-01   4.01766900e-01   7.79207834e-01  -2.32639601e-01
109    7.76469390e-01  -6.47904805e-01  -1.04451631e+00   2.17091871e-01
110    3.47355406e-01   6.61909095e-01   1.68994987e+00   4.48846078e-01
111   -5.83612891e-01   1.46165091e+00   7.46973555e-01   3.62849362e-02
112    5.15030789e-01   4.76658607e-01  -9.33715908e-02   6.70680060e-01
113   -7.02157105e-01  -2.15842893e-01  -2.85748587e-01  -4.79866512e-01
114    3.73965812e-01   7.52392910e-01   4.94356409e-01   5.86094586e-01
115    8.24946899e-01   2.51546064e-01   4.50806193e-01  -9.47323267e-01
116   -5.98184167e-01  -2.13426164e-01   8.79767436e-01   6.38791371e-01
117   -4.07685697e-02   7.25336244e-01   6.02571060e-01   9.43567540e-01
118    8.74670089e-01  -6.64091665e-01   3.80478761e-01   2.41737089e-01
119    7.18527871e-01   7.48685449e-02  -1.77339462e-01   1.03620046e+00
120    8.75379225e-02   6.72435020e-01   6.82940821e-01   4.81576756e-01
121   -4.55562867e-01  -2.89674800e-01  -4.41396055e-02   6.80949364e-01
122    3.40573269e-01  -1.52489553e-01  -7.04957791e-01   7.91178051e-01
123    6.40188159e-02   4.58896007e-02   6.09346650e-02   6.49460888e-01
124    9.69241668e-01   4.01677009e-01  -2.94308880e-01   1.51055915e+00
125    1.20625065e-01   6.56606190e-01  -6.80308256e-01   8.93101490e-01
126    7.69606430e-01   4.71267077e-01   3.67124159e-01  -1.85897111e-01
127    3.74625129e-01  -2.47806489e-01  -5.44703518e-02   1.04111309e+00
128    1.11162816e-01   1.91216138e-01  -8.41055704e-01   3.53813809e-01
129    1.61935969e+00   4.92410627e-02   7.48456030e-03  -1.87718353e-01
130    5.34900497e-01   1.56857210e-01   3.46340032e-02   6.44682821e-01
131    2.73892006e-01   3.73210779e-01   9.70853519e-01   3.61448493e-02
132    8.56910165e-01   9.27872871e-01  -1.20817890e-01   5.84249098e-01
133    8.21185762e-02  -1.11129493e-01  -1.75513889e-01   1.26209349e-01
134   -7.36447815e-02  -1.35295916e-01  -1.15281758e-01   2.03458103e-01
135    2.07310772e-01   5.25490034e-01   2.62191385e-01   1.35158111e+00
136    4.48768187e-02   4.04774623e-01  -6.81236286e-01   4.91398041e-01
137   -1.29328068e-01  -6.12785228e-01   4.92281533e-01  -3.74063612e-01
138    3.49323926e-01  -1.17471753e-01]
139 beta:
140 [ 0.1614338    0.03468611 -0.00709597 ...  0.05751194 -0.11311975
141    0.04983494]
```

```
142 Validation Accuracy: 0.7071690657634773
143 Test Accuracy: 0.6994072819644369
144
145 Process finished with exit code 0
146
```