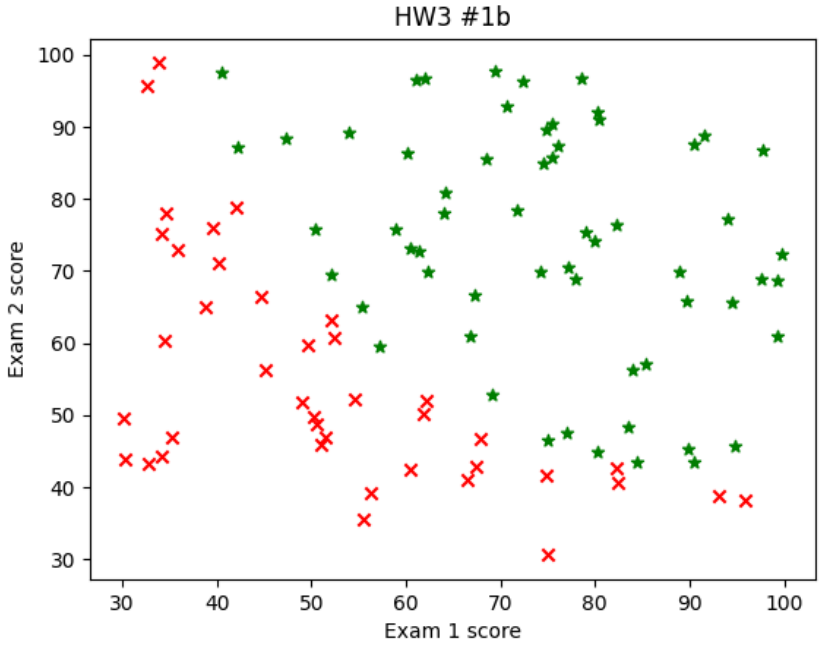
Alex Ivensky
ECE 1395
Homework 3

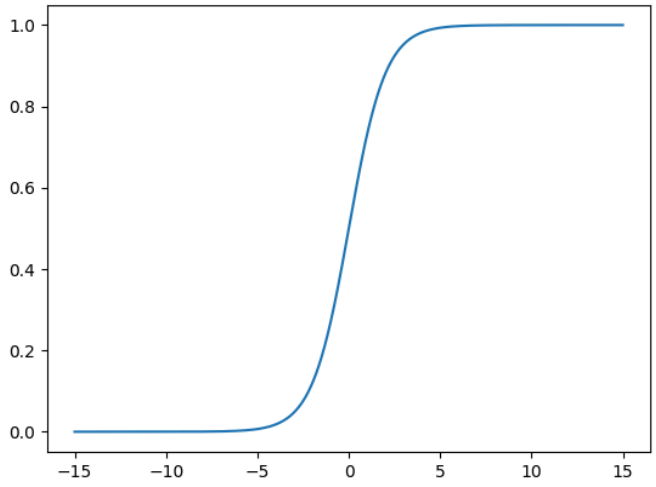
1a.

```
1a.
Size of X:  (100, 3)
Size of y:  (100, 1)
```

1b.



1d.



It reaches 0.1 at -ln(9), which is shown in the figure.

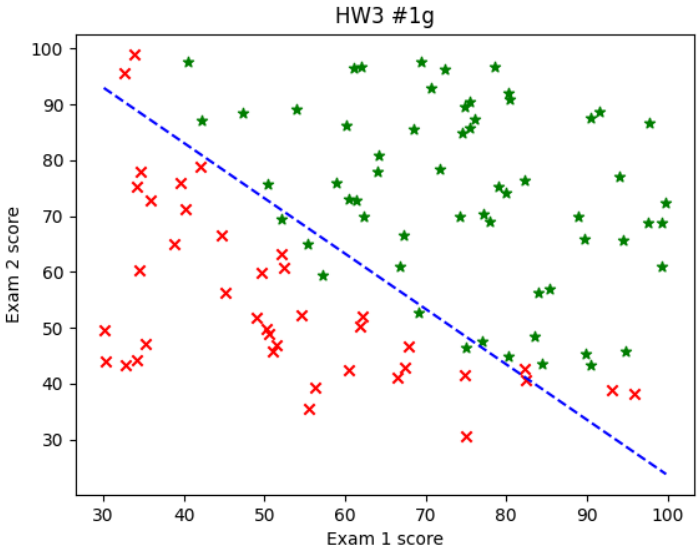
1e.

```
Toy set cost: 1.126928011042967 1
```

1f.

```
Optimized theta:
 [-24.74112552   0.2007472    0.19861685]
Optimized cost: 0.21231835759872805
```

1g.



1i.

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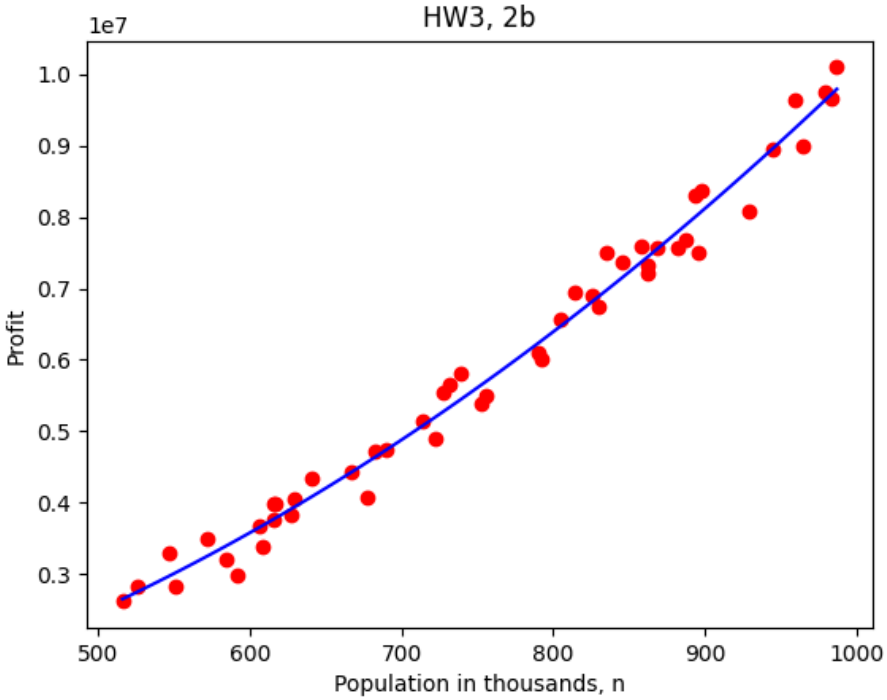
Probability of admission with test1 = 60 and test2 = 65:  0.5825584119380751
```

They should admit the student. (P > 0.5)

2a.

```
2a theta:
 [[ 2.19256506e+05]
 [-7.75885823e+02]
 [ 1.06170506e+01]]
```

2b.


HW3, 2b
1e7
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
Profit
500
600
700
800
900
1000
Population in thousands, n