Assignment 5a:

Sample	X	Y
1	75.1	577.8
2	74.3	577.0
3	88.7	570.9

Iteration 1 , η = 0.1 epochs = 1, m = 1 and c = -1:

dE/dm = -0.5[((577.8-(1)(75.1)+1)*75.1 + ((577.0-(1)(74.3)+1)*74.3 + ((570.9-(1)(88.7)+1)*88.7]

=-0.5[37827.87 + 37424.91 + 42859.84]

=-59056.31

dE/dc = -0.5[(577.8-(1)(75.1)+1) + (577.0-(1)(74.3)+1) + (570.9-(1)(88.7)+1)]

= -0.5[503.7 + 503.7 + 483.2]

=-745.3

Δ m = -(0.1)(-59056.31) = 5905.631

Δ c = -(0.1)(-745.3) = 74.53

m = 1 + 5905.631 = 5906.631

c = -1 + 74.53 = 73.53

Iteration 2 , η = 0.1 epochs = 1, m = 5906.631and c = 75.53:

dE/dm = -0.5[((577.8-(5906.631)(75.1)-73.53)*75.1 + ((577.0-(5906.631)(74.3)-73.53)*74.3 + ((570.9-(5906.631)(88.7)-73.53)*88.7]

=-0.5[-112273085.855]

=56136542.93

dE/dc = -0.5[((577.8-(5906.631)(75.1)-73.53) + ((577.0-(5906.631)(74.3)-73.53) + ((570.9-(5906.631)(88.7)-73.53)]

=-0.5[-1404863.731]

=702431.8655

Δ m = -(0.1)(56136542.93) = -5613654.293

Δ c = -(0.1)(702431.8655) = -70243.187

m = 5905.631 +(-5613654.293)= -5607748.662

c = 73.53 - 70243.187= -70169.657