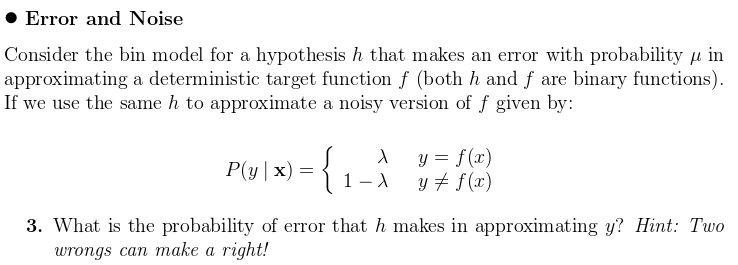
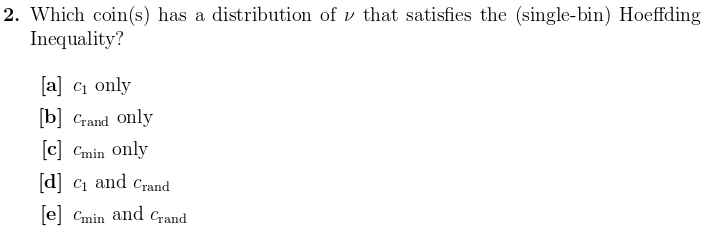


For the program with which this was generated, refer to <https://github.com/cmishra/Learning-from-data-coursework/tree/master/HW1%20-%20PLA%20Implementation>.

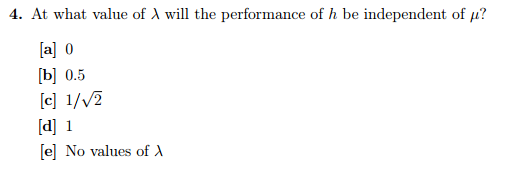




is the original (deterministic) target function. is the new, stochastic target function that returns the probability assigned to event given input based upon the distribution of defined above. is an arbitrary hypothesis function.

Recall we are given:

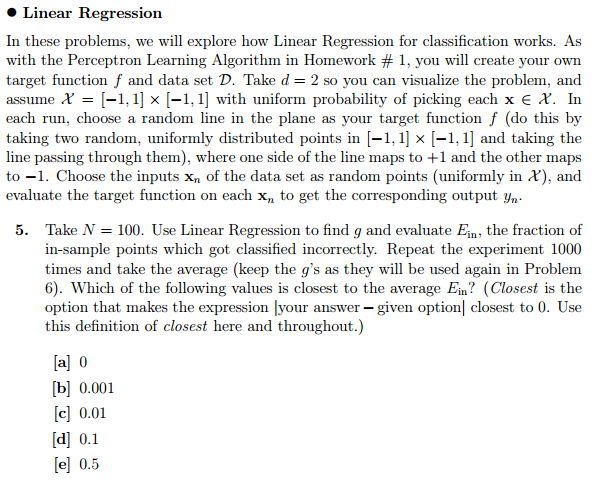
Derivation:



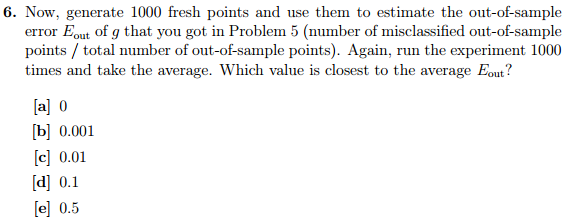
Recall from the last question:

This can be rearranged to:

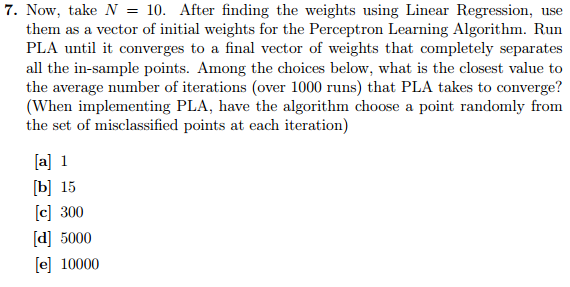
Since we have the added at the end, we can say that regardless of the value of will always matter.



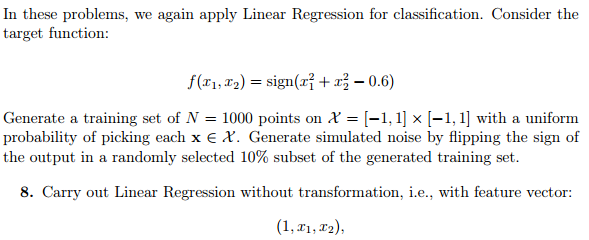
My implemented program had an average of 0.17. The implemented program can be found at <https://github.com/cmishra/Learning-from-data-coursework/blob/master/hw2Programs/src/LinRegImplementation.java>.

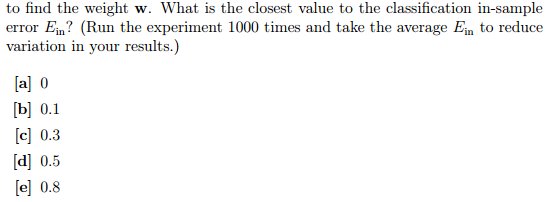


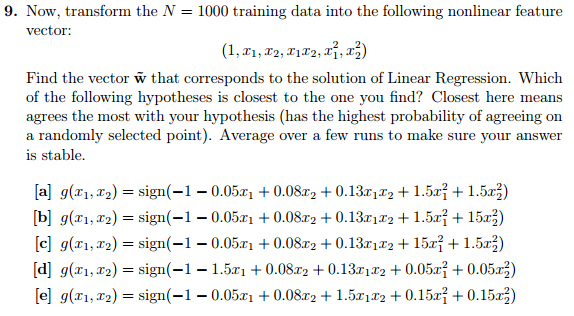
My implemented program had an average of 0.17. This tracks the in-sample error phenomenally well. The implemented program can be found at <https://github.com/cmishra/Learning-from-data-coursework/blob/master/hw2Programs/src/LinRegImplementation.java>.



My implemented program had an average iteration count of 3.55. This is much smaller than initializing the weights at 0 (). The implemented program can be found at <https://github.com/cmishra/Learning-from-data-coursework/blob/master/hw2Programs/src/PLA.java>







The values averaged over 1k iterations of 1k data points:

|  |  |
| --- | --- |
|  | -0.9920648741983545 |
|  | -0.0010410242800370714 |
|  | -6.064162330244251E-4 |
|  | 0.0011122887682191824 |
|  | 1.557843289179927 |
|  | 1.5581759165173998 |