CS4780 219 - Bis Variance Tre deft. D={(n,y,) -- (n,y)} yier End (x, y) iid P(x, y) = P(y(x) P(y) Then distribution

Expected label of (n) = Ey17 (y) = Sy P(y12) dy

for same to Same home would be sold for 50 1000- 10,000\$. clanife seing learned to 10=A(0) 1- Agoni hm say JUM, Percephon Expected test error given hy

= Fryno [(ho(n-y)2] simplicity we pick square loss. = { [(n) - y] P(x, y) dy da Now, ho is also a random variable set. As for different D, ho changes. Expected value of ho Expected domifor=h = #D~pn [A(D)] = Jhp P(D) dD in - menage classifier on infinitely many datements, Expected Emor of A E(n,y) ~ [(ho(x)-y)^2] Take they Train to

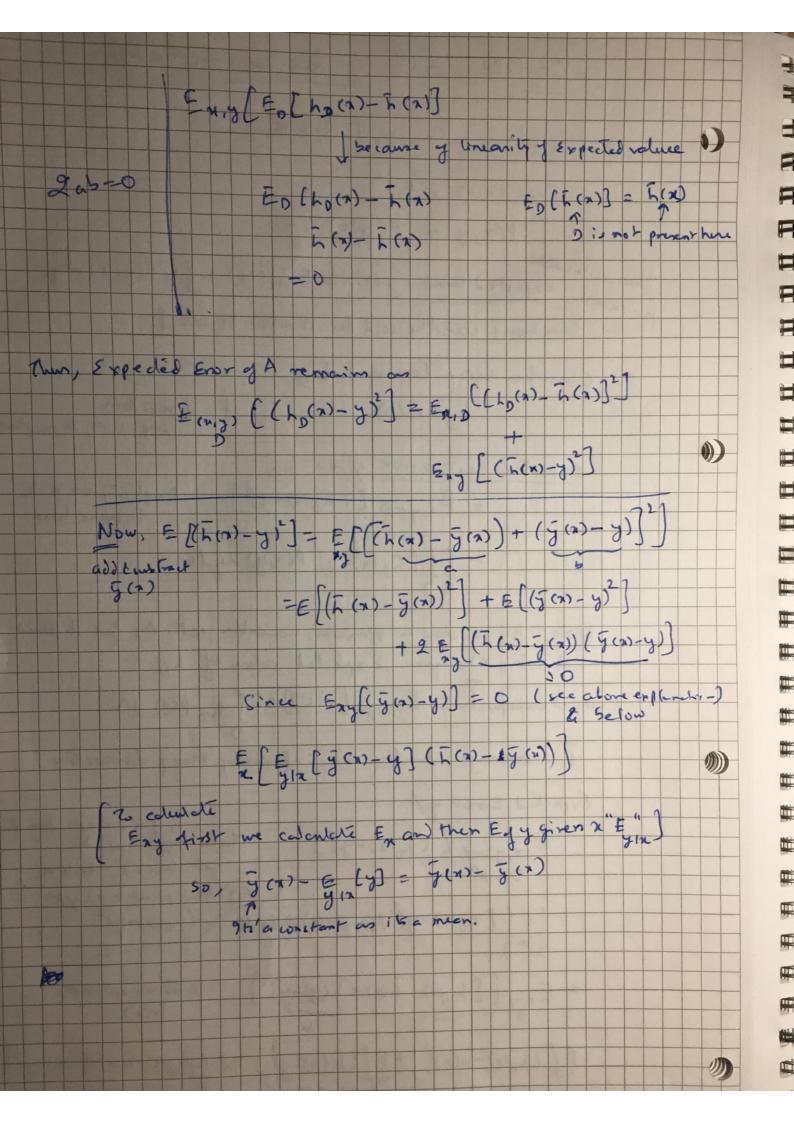
Take they Train to

Jet ho(x), feele a

(n,y) her point and get

The (n) - y)^2 P(n,y) P(b) dydadb (ho(x)-y)^2

The (n) - y)^2 P(n,y) P(b) dydadb (ho(x)-y)^2 = Ex. ([h (n) - h(n) + h(p) -y)] Add an outher



Expected Emred A

[hg(a) - h (a)]] + E [h(a) - g(a)]] + E [(g(a) - y)]

Variance of domifier

how much me clarifier hos?

Vaics with he is (a)): We are to left with vaies wirt to h (x) ie 9f have unlimited data energedexpected clamifur domifier has how much cont get to ore dict The expected lasel. 9f data is linear and 9 use linear clamfier, no matter how much data 9 have 9 will always have high