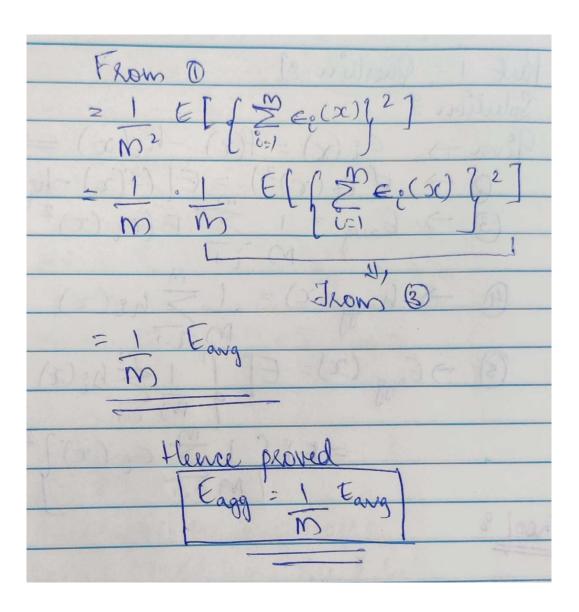
## Question 1:

Solution:

Part 1- furtion 32

Solution 3

Given 
$$\rightarrow$$
  $\in E(x) = f(x) - he(x)  $\rightarrow D$ 
 $O \rightarrow E(E(x)^2) = E[(f(x) - he(x))^2]$ 
 $O \rightarrow E(E(x)^2) = E[(f(x) - he(x))^2]$ 
 $O \rightarrow E(E(x)^2) = E[(f(x) - he(x))^2]$ 
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 $O \rightarrow E(x) = E[(f(x) - he(x))^2]$ 
 $O \rightarrow E(x) = E[(f$$ 



## Question 2:

Solution:

Solution:
Part 1 - Question : 2
Given & Eagg = EIf 1 5 (hi (x) - f(a)) find
$E_{\text{avg}} : 1 \ge E[(f(x) - h_{\ell}(x))] \rightarrow 2$
Assuming g(x) = Zxc
Assuming $g(x) = \sum x^{o}$ $0 \Rightarrow \sum_{x \in \mathbb{Z}} f(x) = \sum_{x \in \mathbb{Z}} $
Earg = & I g (E [ (f(a) - hi (x))^2]) -> 4.
Proof by alastani,
Jensen's ûnequality:-f(\(\frac{\mathcal{E}}{\ell_{21}}\)\text{\gamma}\(\frac{\mathcal{m}}{\ell_{21}}\)\(\frac{\mathcal{m}}{\ell_{21}
Assuming X-1m and applying 5 on
Assuming \-\Im and applying 5 on  (3 & 9 (Eg(x)) \rightarrow g(EW)
We can conclude that
We can conclude that Eags & Earg.

## Question 3:

Solution:

Doru	uon
	Part 1- Puestion: 3
	A A A A A A A A A A A A A A A A A A A
(	Spiven H(a) = Sign (\(\frac{7}{4}\times h_{\tau}(a)) \rightarrow (\frac{7}{4}\times h_{\tau}(a)) \rightarrow (\frac{7}{4}\times h_{\tau}(a))
	(a) to
4-12	D (E) = D (E) x e - X + h = (E) y(E) -> (3)
	the T.
(B)	( (3) ) while a 13) + 0000 000
	brox for adaboost process & Can be written wet De as
	be written wet De as
0 2	7 1 1 2 1 UF 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	E = ≥ D <sub>+</sub> (e) → 3
	$E_{\epsilon} = \sum_{i \in \mathbb{N}} D_{\epsilon}(i) \rightarrow 3$ $E_{\epsilon} = \sum_{i \in \mathbb{N}} D_{\epsilon}(i) + y(i)$
	Since both h <sub>e</sub> (i) & y(i) are in [-1, 1] we can expand (2) as i
7	100 Carrie expand & aso
(1)	$D_{tH} = D_{t} (i) \cdot e^{-\alpha_{s}h_{s}(i)y(i)} \times e^{-\alpha_{s}h_{s}(i)y(i)}$ $Z_{t} = Z_{t}$
	tH T
	Z, - ~ + h ( ! ) y ( ! ) / 2
	T,
	The state of the s
	= 1 0 - 3=1 × 5 h; (1) 4(t)
	11 70
	- y(c) f(c) , (a)
3	= 1000000000000000000000000000000000000
	N where f(i)= 2 x sho(i)
F	1 a contract of a

The total training second H(x) can be written as:

The self H(x) can be written as:

N i=b(t) +y(t) [ This is the average of the nusclassified points]
We know this = Sign (fres) -> ©
Hence, we can conclude Because we have  $e^{-2}/1$  when  $X \le 0$ we can write  $T_{H} = 1 \ge (1 \ge e^{-y(t)}/t(t))$   $N = 1 \ge e^{-y(t)}/t(t)$   $N = 1 \ge e^{-y(t)}/t(t)$   $N = 1 \ge e^{-y(t)}/t(t)$ [Flom (4)] S I (NT Zz) E D (P) LI (M TIZ) X I

(Since D is a probability

distribution:

6 % Jun is I

