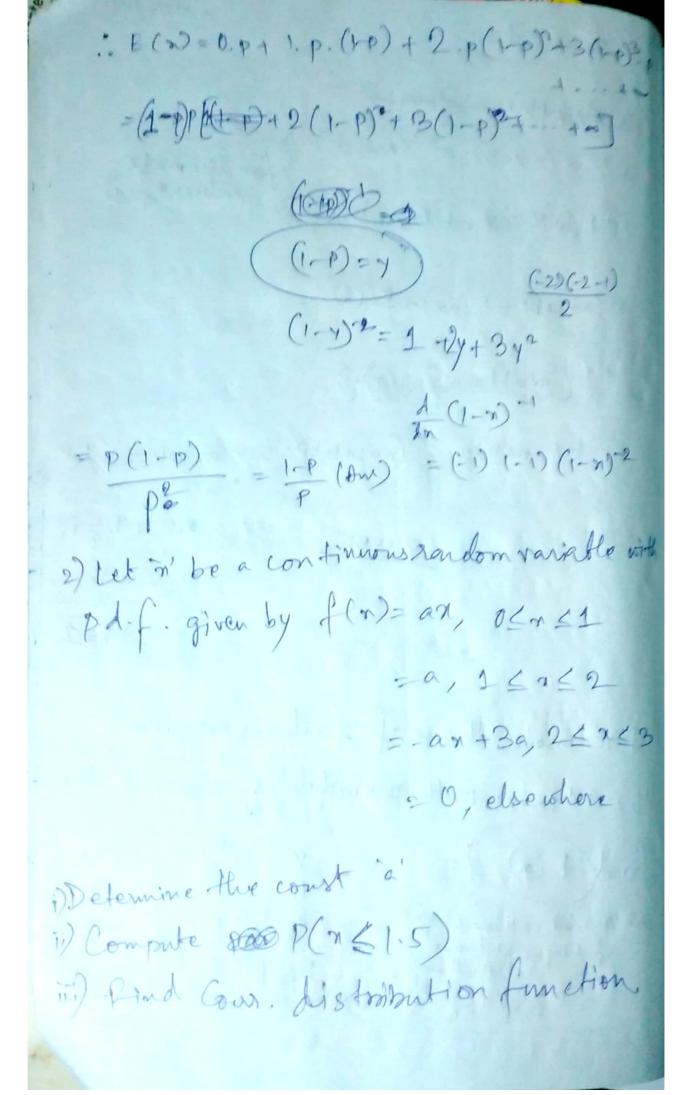
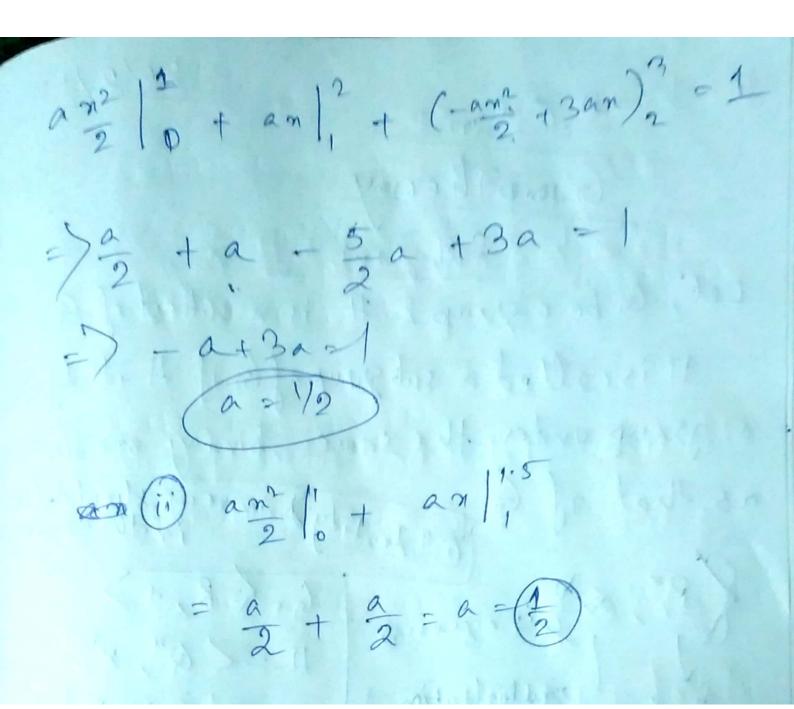
20/2/18 Probability Har (antb) = E (antb) ) Var (an+b)=a2 Var (a) 2) E(ax+b) aE(x)+b E(an+b) = B(an)+B(b) E(g(n)) = \( g(n) \cdot P; E(an+b) = 5 (an;+b).P; = 5 an: P;+ 5 bp; (PROVED) = a S xiP; + b S P; = a E (-a) + b : SP1=1 Definderiotes the no. of failures receiving the 1st enccess with probability of sucess' p', then find E(n). Al B - die -> throw 61 wind & A begins. What i prob that A will wim? Et & . [ + ( 5) 2/1. +0





26/2/18 S.C. Sin GroupTheory Ent group Let, Go be a group & H is a subest of G. His called a subgroup of Gif Hitsely is a group under the same binary operation as that of G. Woldentity & inverse should be in the groups G = { R, + > Ex X 3 is a group H = < Q\*, x> R- {0} Comultipliation Though both H & 6 are groups & R\*CR G= & R, + 3 but His not a Sub group of G. H= < b, +> due to diff operation set of rationals. ... His a soubgroup of G i) Willidentity element of by It be some? 2) Will the inverse of an element in these same as that of the element in G? 

Proposition: Let II be a subgroup of a group's, Then I wove that i) the identity elements in 6 ft me same ii) that inverse of an element for an element a EH, the inverse of a in H is same as the inverse of a in G. Proof Olet eg & ex be the identity elements in G, resp. & H, resp. let, he HCG. i. h. ex = h = ex.h h. en= h= ea.h. which implies h. LH = h. lg =) PH = CG ( by left cancellation property ii) let a g & a g be the inverse of a in 6 8 H, resp. a E H CG. a = e = a = a . a. a. a" H = EH = a" 4. A

We know la = EH - a a ' 6 = a a ' u o) a d = a 2 (by left conceletion property) Theorem: Let H be a subset of Grushichis group. Then His a subgroup iff ta, be ab = 14 Proof: Let, # be a subgroup of G and a, b & H. and hence by closure property a EH, b'EH = ) ab'EH. Conversely let a, b E H => a b' E H. Since a EH, Rail EH, n.e. e EH Now eEH & let E H. Then according to assumption e.a-1 EH, i.e. a-1 EH Let, a, b & H. Then ab "EH, i.p. a, b "EH. Ace to assuper ption & a(b)" & H, i.e. a b & H

it is a subset of G, which is a group, the associativity is inherited by H. '. His alsog group under the same bornary operation as that of 6.