(1) $\rho(x=1)=(0.5)$ (2) $\rho(x=2).(6.5)$ $\leq 2 \cdot \rho(x=1)$ Date ER PRACILCE expectation. A mean is also expectation. expected value or men value of a discrete random vori alle is defined E [X] u . P(x = x) = } means that if we have radon verible 1 and 2 and train respective proson is 0.8 and 0-2 then to man would be (1) (PX = 1) + (2) P(X = 2)mean (1) (0.8) + (2) (0.2) 0.8 + 0.4 a weighed overage of the possible values ů. h that X can take an, each vale being weighted by the probability p(w). a) the outcome whe we coll a 4 sided four die, fin8 CxJ 3 X = 13 the condom variable X is the out come which mills [1,2,3,4]. 12 . step 2) mean = PCX=X).(W) + 10 W PCX=21.2+ PK=3)-3 + P(X=4)-4 P(x=1) - (1) + SOLO

1.1 + 2. 1 + 3x1 + 1x1 (1)2. Cp=x=1) 1 + 1 + 3 + 1 1+2+3+4 105 @ 5 = 2.5 mecn = 2.5. if I throw this die for a large number of times then I will get the expected value of a mean value OF 2.5 e) Expectation of a function of a random variable 1 4) It X is a discrete radon variable and g is a real valued function then the expectation (or expected value) 1 of y = gcx) is _______ reason voiche E (g(x)) = Z g(u) · px(u) 4: px (4)>0 x is a disible roobom voidle with post. u = -1 1 Px(u)= 1/4 " 1/2 1/4 Y= x2= compute E(5). SOLO

only find out don't the expectoreyof so in this example were the E[y] = x2. So x2. Px(u)	Date	
From previous example we could The interpretation of X or well. From previous example we could The previous example we could be previous example we can be previous example when the previous example we can be previous example we can be previous example when the previous example we can be previous example and the previous example we can be previous example and the previous example we can be previous example and the previous example we can be previous example and the previous example we can be previous example and the previous example we can be previous example and the previous example we can be previous example and t	E(A) = 3.(N) + 7(N) /	450,
E(y) = 1. why is this? This is useful became by the motal find E[y] and as we use Can find out about the expectation sown in the generic form that of function of x as well. From previous example are could as we card as we card as a some further and find out don't the expectorage so in this example are has a so x2. Px (w) X. E[y] = x2. So x2. Px (w)		E g(u)·Px(u)
Ms is useful became by the moted find E[7] and as we use to find out about the expected some in the generic form that of function of x as well. From previous example are could a some function of the find out don't the expectorage so in this example are in the complete are could be some function of the complete are could be some function of the complete are could be so in this example are the first out the expectorage so in this example are the first out the expectorage so in this example are the first out the expectorage so in this example are the first out the expectorage so in this example are the first out the expectorage so in the example are the first out the expectorage so in the example are the first out the expectorage so in the example are the first out the expectorage so in the example are the first out the expectorage so in the example are the first out the expectorage so in the example are the first out the example are the example	9 9	Px(w)50.
This is use ful because by this moted find E[7] and as use use and the control of function of x as well. From previous example are could be find out don't be expected so in this example are the control only find out don't the expectency of so in this example are the x. E[7] = x2. So x2. Px(u)	2	E . x2. Px(u)
The is useful because by the motod find E[7] and as we use the confine out about the expectation some in the generic form that of function of X as unds. From previous example are could as we could as the expectation of this example are the configuration of the expectation of th	E(3) = 1	
of function of X or well. From previous example we could control out don't be expectately so in this example we have the expectately so in this example.		and the second tree la
of function of X or well. From previous example we could control out don't be expectately so in this example we have the expectately so in this example.	ms is use feel because by his metal	an is be [1] and come
From previous example we could confirm the expectancy of so in this example we have the expectancy of so in this example we have the expectance of the example of the expectance of the example of the ex	ind out about to a mitte	Sow in the generic form that
only find out don't the expectoreyof so in this example we have X . E[Y] = X^2 . So $X^2 \cdot P_X(u)$	Timetion of X carrell	E[7] = q(u) · Px(u)
X. E[y] = x2. So x2. Px(u)	previous example we could	us some function
50 x2. Px (w)	If this out don't the expectoreyof	so in his example we ha
	*.	E[73 = x2.
where g(x) is x2.		so x2. Px(u)
		where g(x) is x2.
		order of the second second

Pro	perties	OF	expected	values !	
	The second secon	-	The second second second second second		-

-> If a one b are contains then,

6+ [x] 3 p = [d+ xa] 3

holds for all radom variables X,

-> This property is saying how we can take constants outside and then do the code with them.

or Proof for discrete rondom vorioble: letg(X)= ax+6

E [g(x)] = @ & g(u). P(u)

E [ax+b] = a;p(u)x0

E (ax+6). p(4)

SOLO

Z = X+y. pgw. /cm). gen= ax + b Date_ 2 pcus = 1 $E(ax+b) \cdot p(x)$. < ax.p(x) + & b(pu) a & u. plu) + b & plu) Lx33. a + [x] + p q(x) = ax+b. F[ax+6] = proofed above. ·) Constart - Pactor. [x]3@ = [x]3 -) Constant y expectation of a constat is itself. (d)= (d)3 for two random variale's Xond y. ECX + CX] = CB+ X] 3 P(4) y : 3x +2 € (3×12) . p(k) ≥ (31 0) · p(1k) + ≥ 2 · (p(k)) 3. & (ic) .p(11) + 21 SOLO

Mg. = CXJZ

Date
POACTICE
Variace and Standard Deviction:
·) variance:
ECXI The Expected value I mean represented by works
ELXI yields the weighted average of the possible value of X
4 = is the weighted
1 = is the weighted average of all the possible values of u.
Vorione measures the veriation (or spead) of these values
62 = Var (X) = E CCV = 122 values
This holds for all condom variose X .
condem variable X.
Simplification, R= ECXD
그리고 그는 그리고 있는 아이들은 그는 그는 그는 그는 그는 그는 그리고 있다. 그는 그리고 있는 것이다.
nor (X) = E(X,) - m = E[x,] - (E[x,])
Standard devidion:
그렇게 그렇게 하는 사람들이 없는 사람들이 살아보니 그는 사람들이 되었다면 하는데 아이들이 사람들이 되었다면 하는데 그렇게 되었다면 그렇게 되었다면 그렇게 되었다면 그렇게 되었다면 그렇게 되었다면 그렇게 되었다면 그렇게
G = SD(A = Jvorcx)
(O) compute the S.D of fair 4 sided dice.
ba-E(x) - 4
us = (1) .1 + 2 . 1 + 3 . 1 . 4 . 1
N= (1) -1 + 2 - + 3 - 1 + 4 - 7
U= +++=+===============================
SOLO .

Date de2=(2.5)2 42. = 6.25 £[x2]= ≤ x2. 6(x) E[x,]= (1), + (5), + (3), + (3), + (A), + 4 + 1 + 4 + 4 -6-75-7-5 6-75 - 6.25 VOCX) = Va(x). 0.5-1-25 S.P. JOOTCX) S.D = JOS 7.25 Higher the variance the finder the random variable is set larger the S.D or verience the random voidle is spread over a lorger cream, The higher the