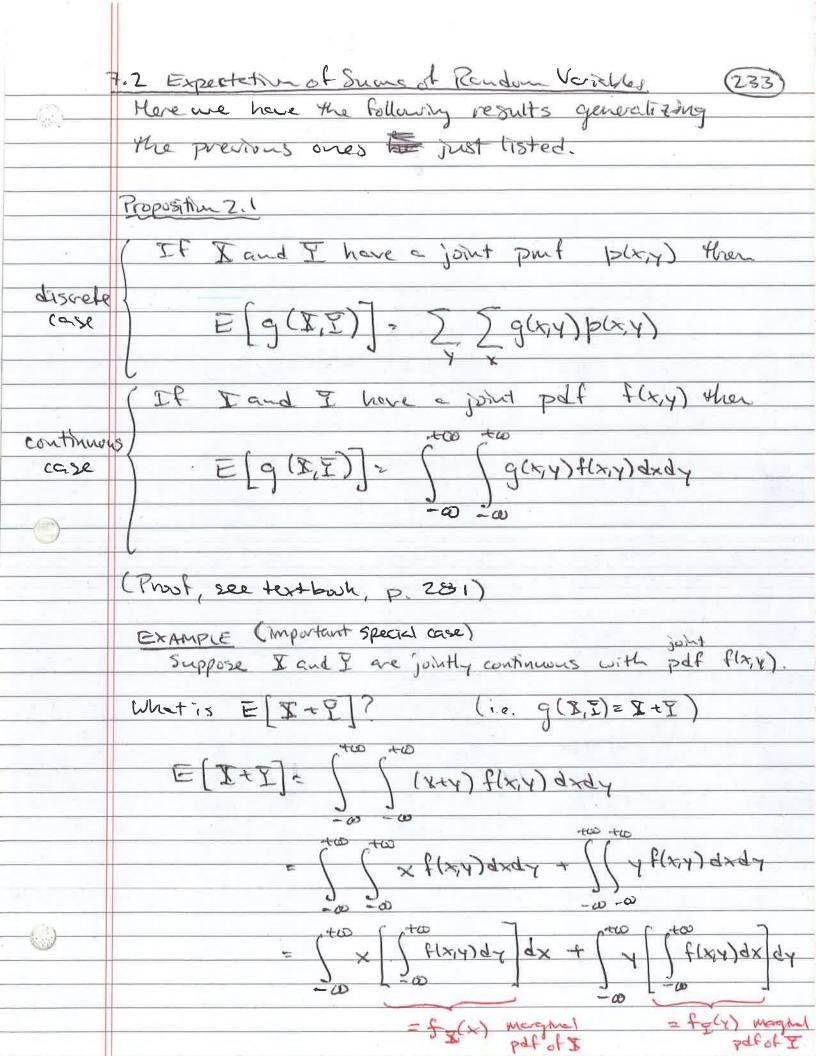
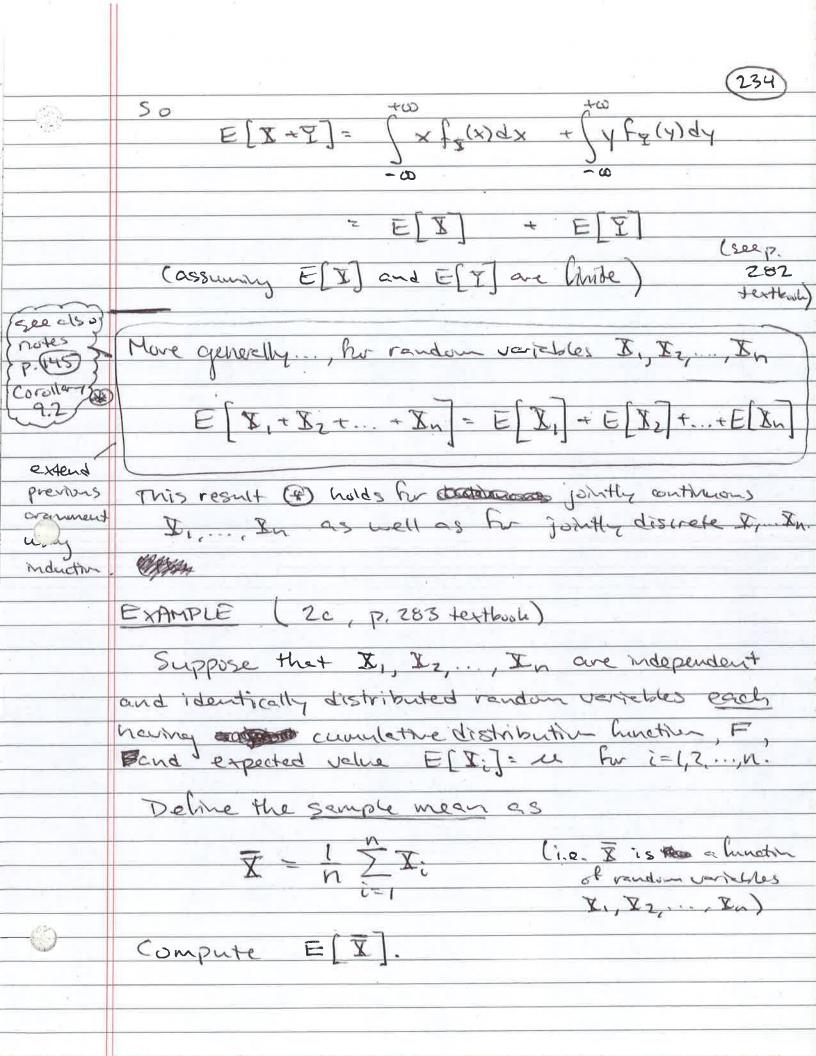
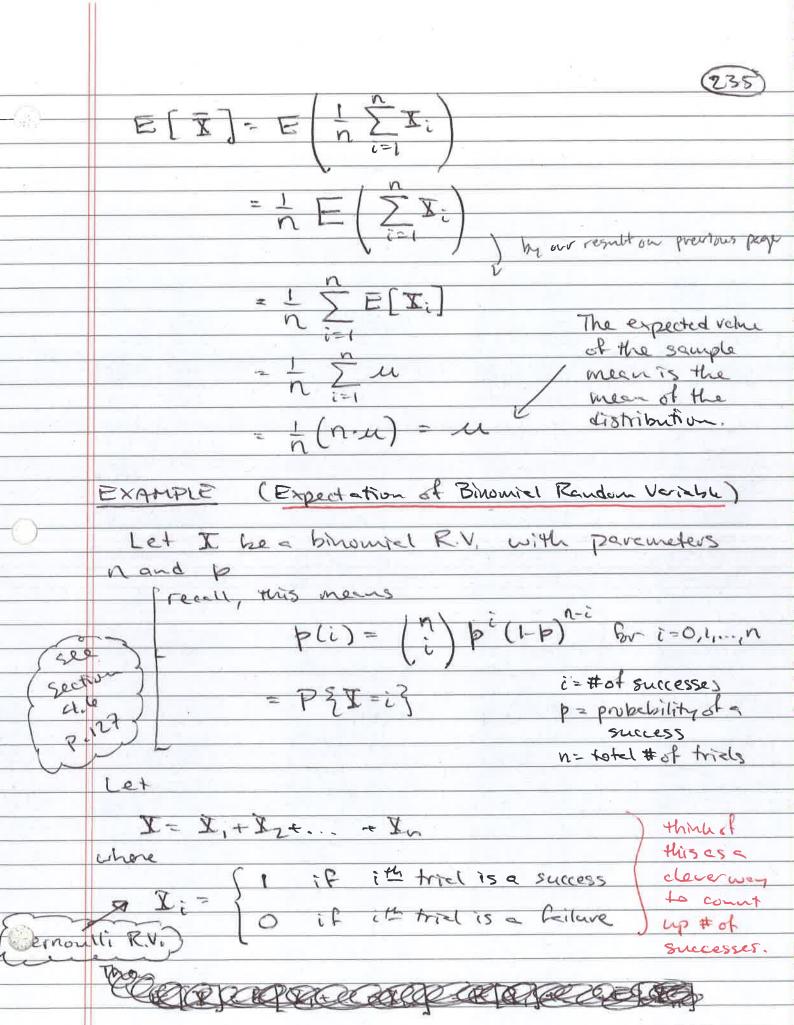
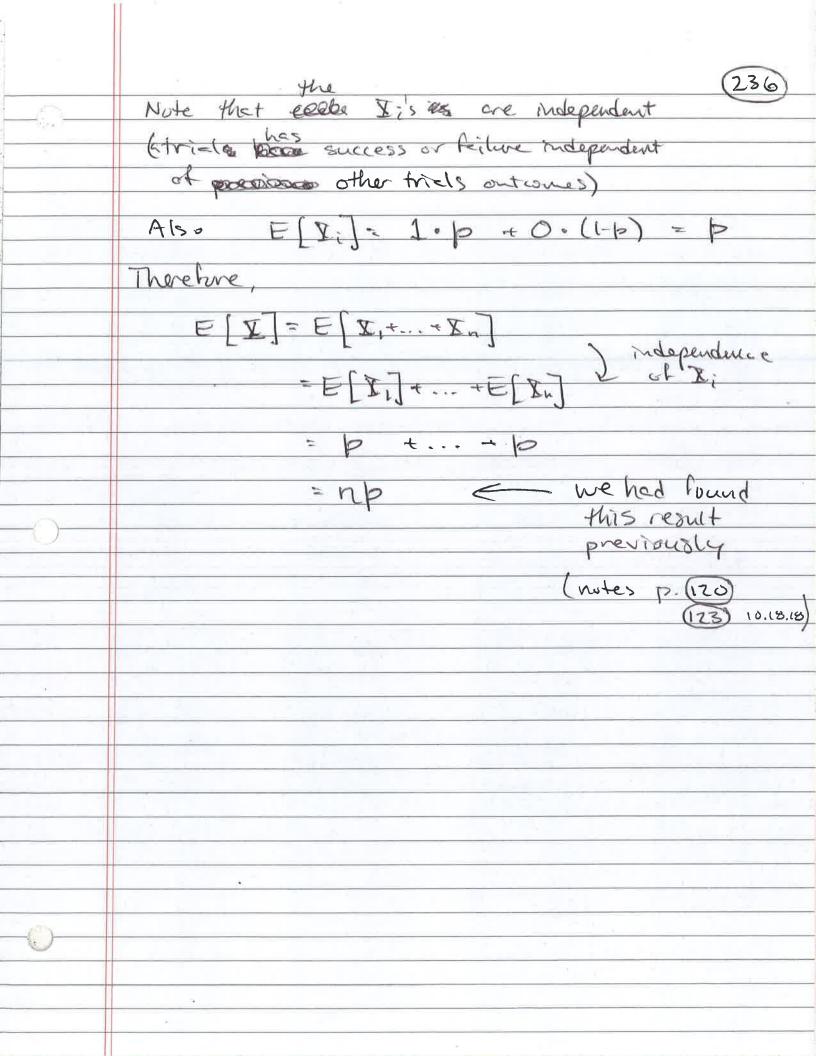
	Y V	(252)
( <u>)</u>	Ch.7 Properties of Expectations	
	Recall the definitions of expected value of	
	· I is disvete:	
	$E[X] = \sum_{x} p(x)  \text{where } p(x) \text{ is}$ $probability mass$ of X	thy hundry
	also  E[g(x)]= \( \square\) g(x) p(x) \( \cdot\) expected  of a func	vehic thu St X
	(see proposition 4.1, p. 122 textbook)	
<b>D</b>	· It is continuous:	
	$E[X] = \begin{cases} x f(x) dx & \text{where } f(x) \text{ is } H \\ probability dense \\ hureth of X \end{cases}$	
	also $E[g(X)] = \begin{cases} f(x) f(x) dx & experted \\ of a funct \end{cases}$	
	(see Proposition 2.1, p. 181 textbook)	
	What about jointly distributed random varial	I.X 20

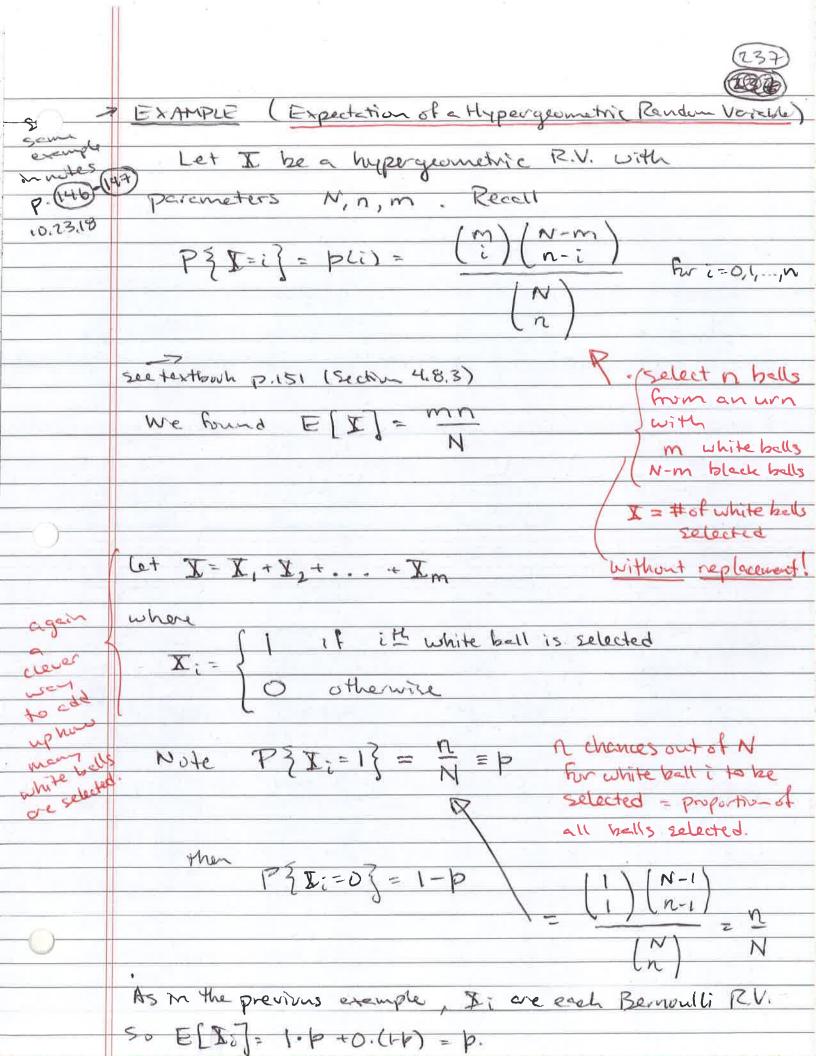
-0











Then

$$E[X] = E[X_1 + X_2 + \dots + X_m]$$

a see also notes

P. (47)

Recall, we had found that the expected velue for I was the same for drawing boths with and who replacement [m white boths select n balls]

with replacement

without replecement

$$P\{X=i\}=\binom{n}{i}p^{i}(1-p)^{n-i}P\{X=i\}=\binom{m}{i}\binom{N\cdot m}{n-i}\sum_{i=0,n}$$

P= M

E[t]= MY

7

seve expected value

	7720
_(*,)	7.4 Covariance, Variance of Sums, and Correlations.
	Recall: For a shape R.V.
	Disorete: E[x] = \( \subsete \)
	*
	Var(I) = E[(I-u)] = E[I]- (E[I])
	u=E[X]
	Continues
	$E[X] = \int_{\infty} x f(x) dx = m$
	_00
	$Var(X) = E[(X-m)^2] = E[X^2] - (E[X])^2$
- 11)	
	Def: Covariance between I and I
	The covariance between I and I denoted by Cov(X,I) is
	$(\mathcal{N}(X'Z) = E[(X - E[Z])(X - E[Z])]$
	Note:
	" (OV(X,I) = E[XY - E[X]Y - E[X]X + E[X]E[X]
1 3	= E[II] - E[Y]E[Y] - E[Y]E[Y] + E[Y]E[I]
	$\left( (OV(X,\overline{x}) - E[XY] - E[X]E[Y] \right)$

