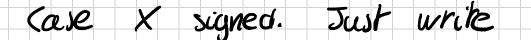
Question For a general X: (I,F,P) -> (B,B(B)), hav do you define EZX3? ① If X discrete, X: S → E={x; i>i}. Then $E[X] = \sum_{i=1}^{\infty} x_i P(X = x_i)$

@ If x admits a density f. Then

 $E[X] = \int_{B} x f(x) dx$

3 × is R-valued with cdf F. Then $E[x] = \int_{\mathbb{R}} x dF(x) E[1_A] = R(A)$ General case: follow 544. Start with 4 x≥O. Then (i) One can approximate X by a requence of Xn which are "ximple": $X_{n} = \sum_{i=1}^{N} \alpha_{i}^{(n)} \underline{1}_{A_{i}}^{(n)}$ and Xn 7 X We have $E[x_n] = \sum_{i=1}^{N} \alpha_i^{(n)} \mathcal{P}(A_i^{(n)})$ (ic) Since Xn ? E[Xn] is also increasing. Then $E[X] = \lim_{n \to \infty} E[X_n]$ we say that XEL'(I) if E(X) < 0



X= X⁺ - X⁻ (Rmk XEL' => 1XIEL')

Then XEL'(S) if X+EL'(S) and X-EL'(S) and

$E[X] = E[X] - E[X] = \int x(\omega) dP(\omega)$