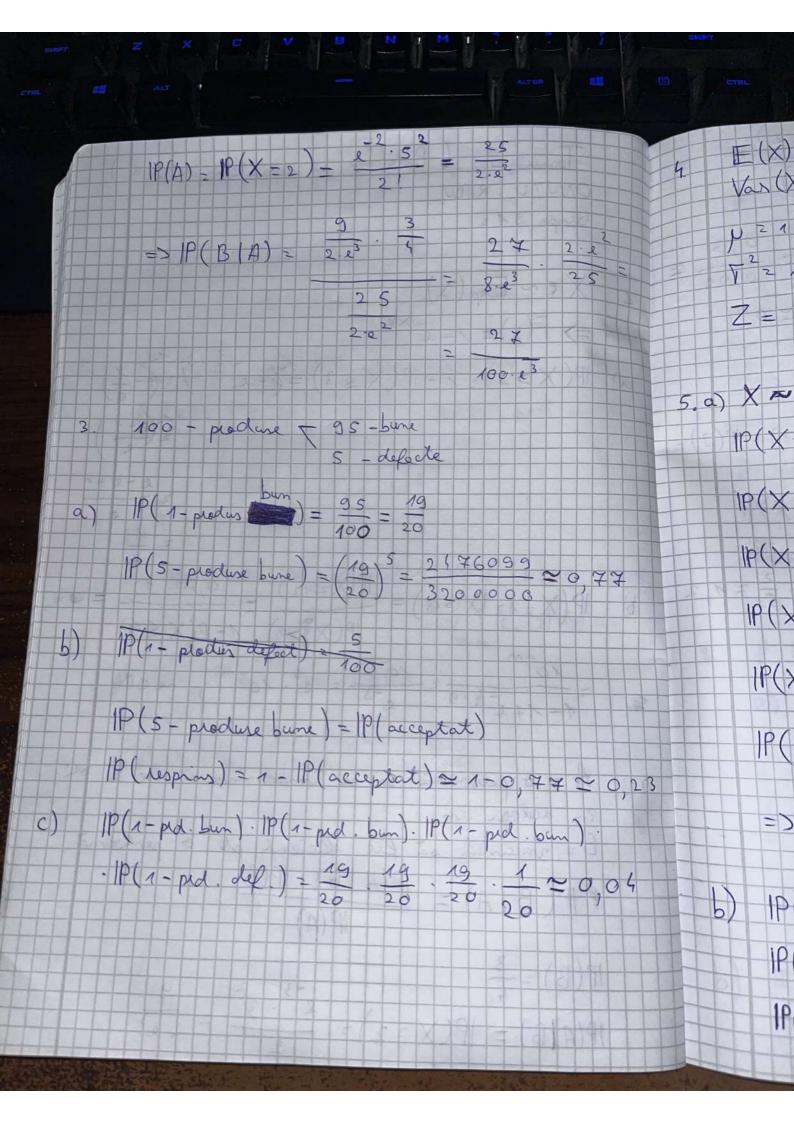
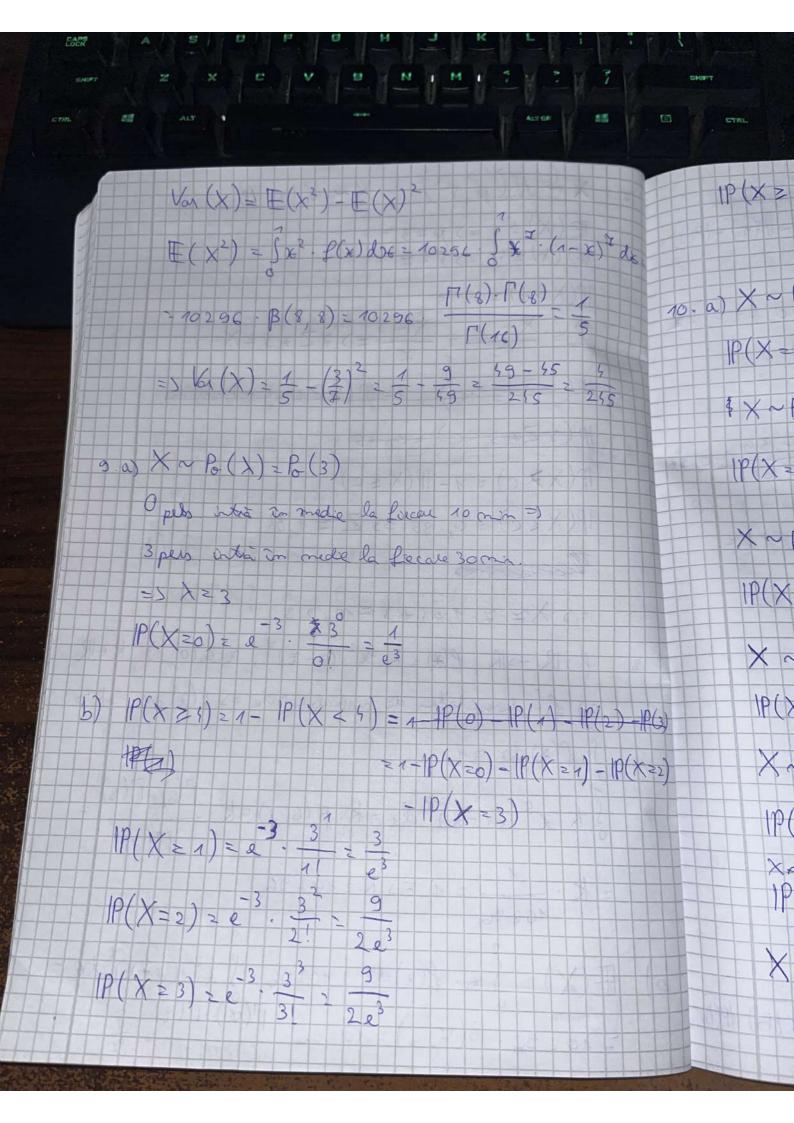
Tema 2 (Probeleme en repartition de v.a.) ONUTU RAGU Gupa 312 1. X & ~ Exp(X) => F(x)=1-2× a)  $\mathbb{P}(X > 3) = 1 - \mathbb{P}(X \le 3) = (1 - 2)$ meMx b) IP(X=12|X>9) = IP(X=12) = 0,00...1 = 0o, treir DG =1 A = o pelsoans sa se imbolnamenta de 2 of in acelasi an Bz vacional sa lie eficient pt. o persoano. FIP(BIA) = IP(A | B) - IP(B) 1P(B) - 3  $IP(A|B) = IP(X=2) = \frac{2^{-3}}{2} = \frac{9}{2}$ 

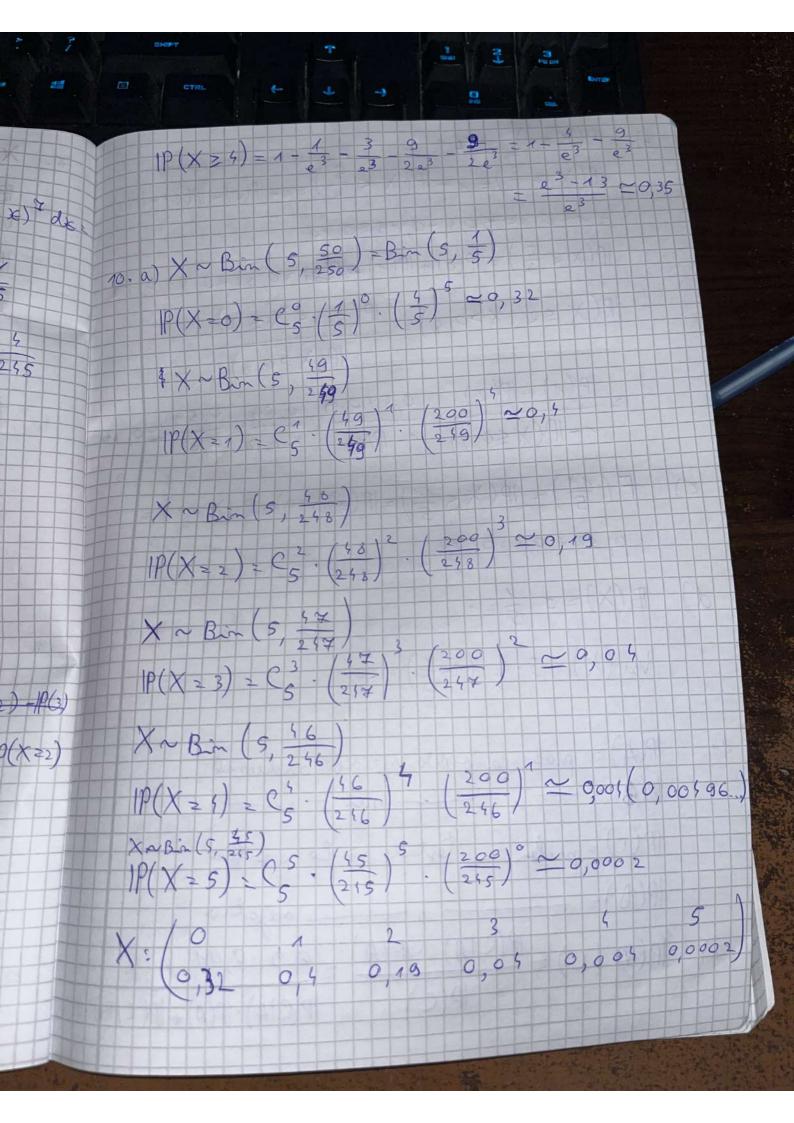


E(X) = 173  $X \sim N(y, \tau^2)$  Van(X) = 16  $X \sim N(173, 16)$ N = 173 T = 16 => V = 4 Z = X - N - 176-173 3 = 0, 75=> 77,31% 5.a) X & Bin (5, 250) = Bon (5, 3); k=0,5  $1P(X=0)=\frac{2}{5}(\frac{3}{5})\cdot(\frac{2}{5})^{\frac{5}{2}}\frac{32}{3125}=0,01$  $IP(X=1)=C_5\cdot (\frac{3}{5})^1 (\frac{2}{5})^1 \frac{48}{625} \sim 0,07$  $|P(X=2)-C_5-(\frac{3}{5})^2-(\frac{2}{5})^3-\frac{144}{625}=0,23$ 77  $IP(X=3) = C_5^3 \cdot (\frac{3}{5})^3 \cdot (\frac{2}{5})^2 = \frac{216}{625} = 0.34$ IP(X=4) =  $\binom{1}{5}$   $\binom{2}{5}$   $\binom{2}{5}$   $\binom{1}{5}$   $\binom{2}{5}$   $\binom{1}{5}$   $\binom{2}{5}$   $\binom{2}{5}$   $\binom{2}{5}$ IP(X=5) ≥ (5 (3)5 (2)° 243 ~ 0,07 =) X: (0,01 0,07 0,23 0,34 0,25 0,07) b) IP(X=4) = 0,25 IP(X 3 1) - 里1-1P(X < 1)=1-0,01=0,99 IP(X < \frac{1}{3}) = IP(\frac{1}{4}X=0) + IP(X=1) = 0,01 + 0,04 = 0,08

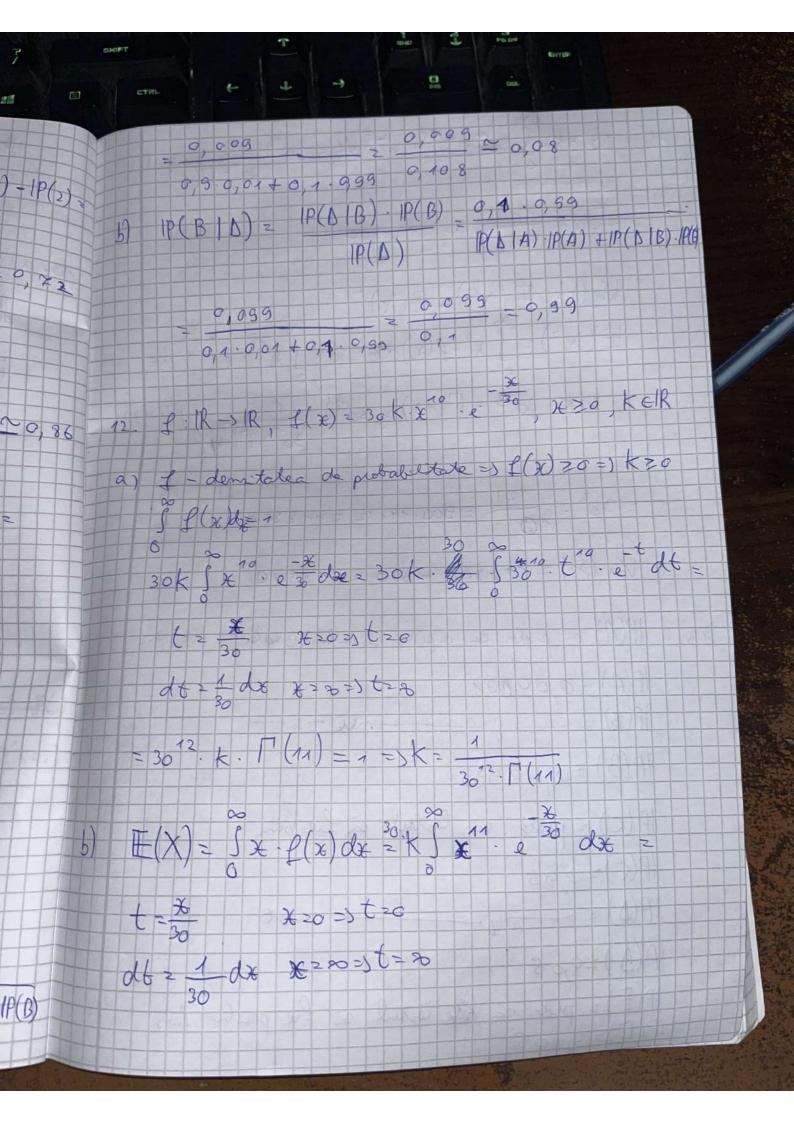
1P(0,02 < X 52) × IP(X < 2 | X > 0, 2) = 1p(X>0,2) E IP(X=1) + IP(X=2) 0,04+0,23 0,3 1-1P(X < 0,2) 1-0,01 c) P(X 5 = )= (5 = = F(=)=1P(x ==)=1P(0)+1P(1)+1P(2)+1P(3)= =0,01+0,07+0,023+0,3420,65 d) E[x] = m.p=5.3=3 Var [X] = m.p. (1-p) = 3. (1-3) = 3. = = 1,2 X~ NBin (10, 1) 1P(X=K) = CK (1) (1) (1)  $\frac{2}{k! \cdot (9+k-k)!} \frac{(1)^{k+10}}{(2)^{k+10}}$ (1) K+10 (K+g)! k! · g!

X~N(p, +2); X~N(3, 45) E(X)=3=> N=3 Var (x) = 49 => 1 = 4 IP(X>c) = 0, 15 0,99 Z= X- y = X-3 => 7Z+3=X IP(771320)=1-1P(77+300)=0,15 1P(22+360) =0,85 IP(3)= 1P(XZC)=1-1P(XEC) 1P(X ≤ c) = 0, 85 => Z = 1,04 => X~ 7.1,05+3=10,28 1:1R→1R, P(\*)= K. ×5 (1-×) x, x ∈ (0, 1) K ∈ IR a) f-densitatea de probabilitate => f(x) >0 => k >0 S &(\*) dx = 1  $k \cdot x^{5} \cdot (1-x)^{7} dx = k \cdot \beta(6, 8) = k \cdot \Gamma(6) \cdot \Gamma(8)$ 2 K. 1 = 1 = 3 K = 10296 F(X)= Sx. f(x)dx - 10296 - Sx6. (1-x) dx = = 10296. B(7,8)=10296. M(7).M(8) 3 M(25) = 7

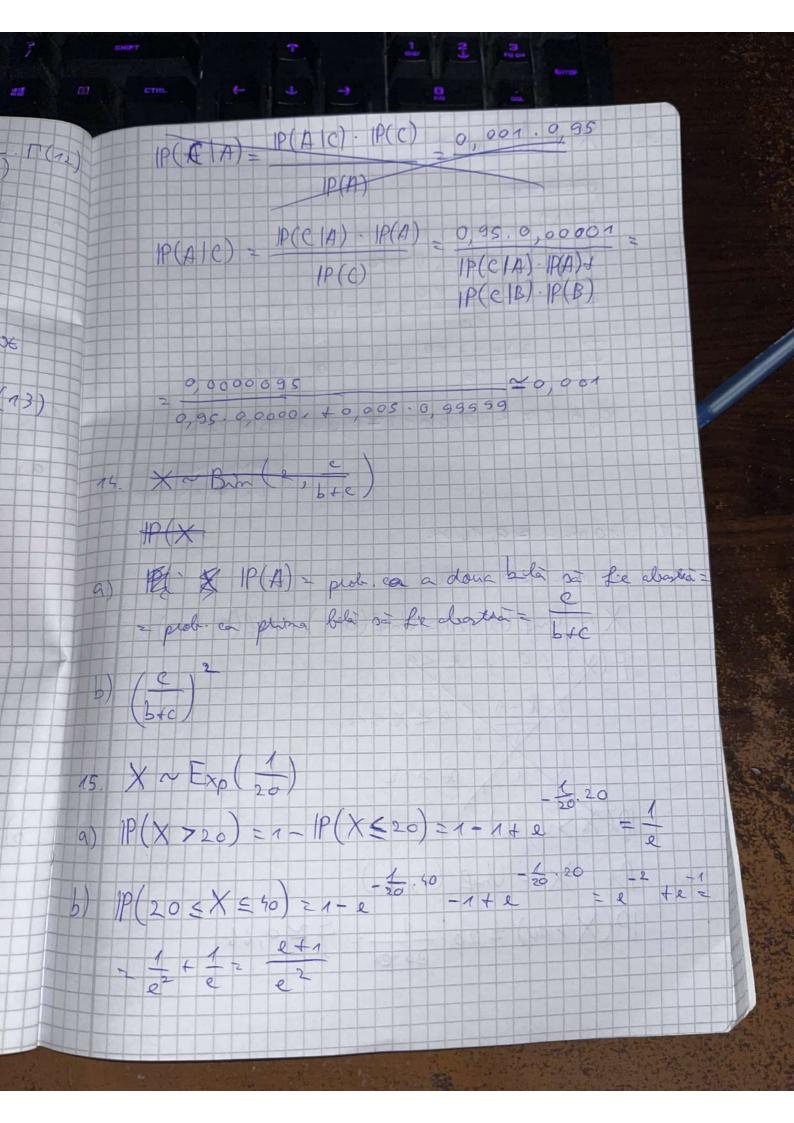




IP(X=1)=0,4 0,90,0  $|P(X > \frac{5}{2}) = 1 - |P(X < \frac{5}{2}) = 1 - |P(0) - |P(1) - |P(2)|$ IPCB 10 = 1-0,32-0,5-0,19=0,19 IP(X < 1/3) = IP(0) + IP(1) = 0,32+0, 920, 72 IP(X ≤2 | X>0,8)= IP(0,8 < X ≤2) 1P(x>0,8) P(1) + IP(2) 0,4 + 0,19 0,59 0,59 0,86 1-0,32 0,68 9:1R-> 1 - den F(11) = IP(X < 11) = IP(2)X=0) + IP(X = 1) = S f(x) =0,32+0,420,72 d) E(X) = 5. £ 21 Var (x) = 5 . 1. (1- 15) = 9 dt = 30 IP(A) = plob. ca o pels se abé indiamil IP(c) = proles co testal so fe positio 1P(D)=-IP(A) = IP(CIA) - IP(A) = 0,5.0,01 db 1P(C) 1P(C/A)-1P(A)+1P(C/B)-1P(B)



30° K \$ 30° 6° 1. e -6 d6 = 30° 30° 2. [(1) IP(Æ = 30 . 10! 2 30 11 = 330 IP(A) Var (x) = \mathbb{E}(\chi^2) - \mathbb{E}(\chi)^2  $\mathbb{E}(x^2) = \int_0^\infty x^2 \cdot \rho(x) dx = 30k \cdot \int_0^\infty x^2 \cdot e^{-30} dx$ = 30 - 10 = 900.11.12 = 118800 Var (x) = 178800 - 330 = 118470 13. IP(A) = prob. ca opers sã arba bosala IP(A) -0,00001 IP(B) =0,99999 IP(C) = prolo ea testal sa fie bun IP(C)=0,95 (P(D) 20,05 IP(E) = prob. ca the tested so for position fals P(E) =0,005



16. X ~ N ( p, V2) b) IP(10 <? V = 2 70 F(X)=270=) N2270 7 230-270 22 = 5 0,9772 a) P(X= Z<sub>2</sub> = 250 - 278 = -3 = > 0, 00 13 日便克 0,97720,001320,0012=30,12% 0) (0,95) Sonze oraici se fre total copilati) 17. 10 mm. 20, 16 ore 30 mm = 0,5 ou X~ Und (9,12) = Und (03) = Und (0,130) X-9 9× X 412 11 7 >12 1P(X >0,16) = Bt. X~ (m.f (0,30) IP(X>10) = 20-1-3 20,66 300

