## Exam 2

Last Name	First Name	Student ID #
Maivald	Chase	U18719879

Honor Code: This exam represents only my own work. I did not give or receive help.

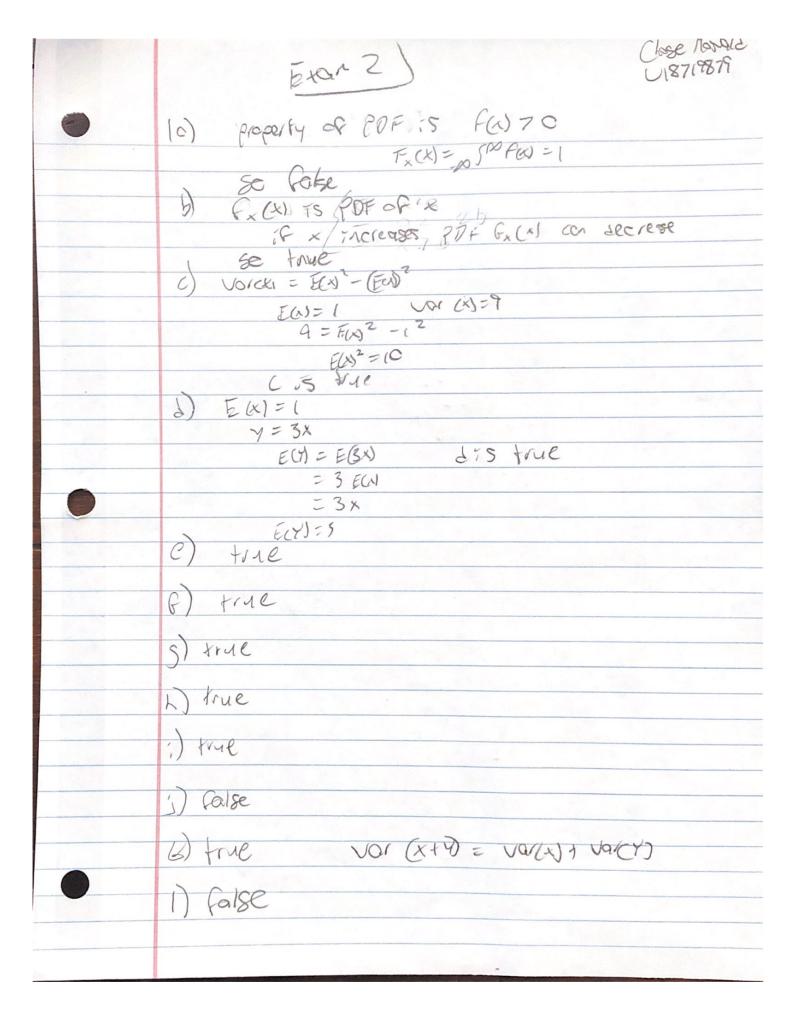
Signature: \_\_\_\_\_Chase Maivald

General Note: In my view, the most important issue is to know how to approach a particular problem. Therefore, there will be partial credit for good solution outlines even if not all the mathematical manipulations are completed correctly. Be sure to attempt all problems!

- You have exactly 1 hour and 55 minutes to complete this exam.
- The exam is Open Book. All work you want graded must be uploaded at the end.
- We will have a Zoom meeting window available. The link is on the Blackboard page, in the Tools/Zoom Meetings page. If you have any questions or need clarification, ask in the Chat window, or send e-mail, or ask by voice. I should be able to hear you.
- Keep track of time. You must upload your solution before the upload link closes!!!
- If there are urgent issues and you need to contact me, I can be reached at 1-781-258-3510.

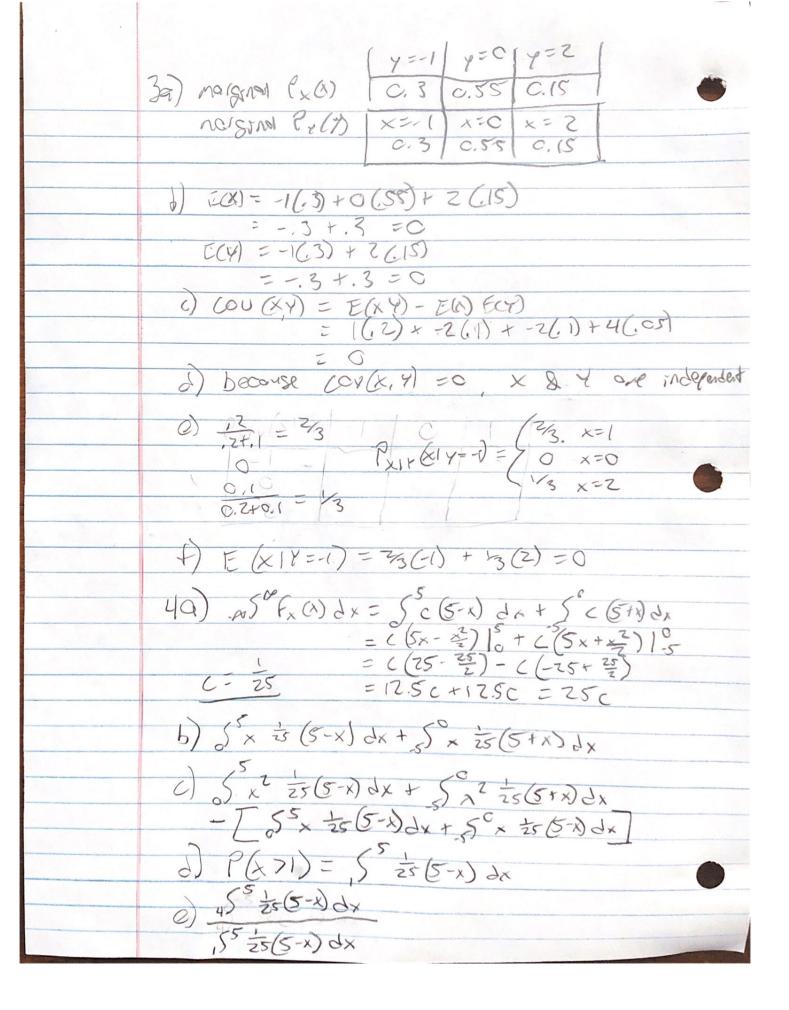
\*\*\* Good Luck! \*\*\*

Problem	Points earned	out of	Problem	Points earned	out of
Problem 1		24	Problem 5		14
Problem 2		18	Problem 6		16
Problem 3		12	Problem 7		3
Problem 4		10	Exam 2 Quiz		3
			Total		100



て) ものここ VOICE = Ex - (TCN) X > E(2) -8-(2)2 7=-ZX 24 E(7)=E(-2x) Vor(7) = 4.4 2.2 ECX WICH = VOrfzx) = . Z2 vo(CX) Ex2= 50 x2 GW dx = 50 x2-2e-22 dx = 42.53/N23 Ix = 2/(1/2)2 = 8 X7 UC,37 FA = 15-1 15 x 55  $F(A) = 1/8-1 \qquad 1 = 7 - 7$  = 1/4  $= 1/4 \qquad 1 = 7 - 7$   $= 1/4 \qquad 1 = 7 - 7$ X4N(1,1) 1=2(x-1) 4=2x-z FCT) = Z E(X)-Z 22x-2 57-2 20 (ECA) = Cz 20

J ELD = Z E, = 8 V=1(W) = FUT - (EUT) = = 8-13 = 4 5.P(X) = 50001 2 = 2 ×+ N (2,2) 2 (24×47) = 2 (2-2 + x-4 + 7-2) = ? 6 = 2 = 2 = 5) = ? (2 = 2 = 5) - ? (2 = 0) = ? (2 = 2 = 5) - ? (2 = 0) = ? (2 = 2 = 5) - ? (2 = 0) = ? (2 = 2 = 5) - ? (2 = 0) e) U[c,1] Y Govssion (x,1) E(x) = 1/2 E(Y) = 1/2. E((x+24)2) = Va((x+24)) + (E(x) + E(24))2 = 1+2+,4



59) ECA = E(4X-1)  $= 4 \cdot E(S) - ($  = 3 E(B) = E(X + 2Y - 5)= E(X) + Z E(Y) -5 = 3-5=-7 b) VOICA) = VOI(4X-1) = 42, VOI(X) Var (B) = Var (x+24-5) = V(x+21) = V(x)+22. V(Y)+2. COV(X,1) = 1+4.1+26.25) = 5+ 5 = 4.5 d) cos (A,B)= cos (4x-1, x+24-5) = 4. COU (x, x+24) (COV(X, X+2)=1, COV(x, x) + 2. COV(x, 1) = VOI(x) + 2. COV(x, 4) = 1+ 2 (E. 25) = .5 = 7 cov (A,B) = 4. cov (X, X+2Y) = 4(.5) = 2 e) x & y are not independent because COV (X, Y) + C

