ENGG2760A Finals

(a) No. When P(A) ≠ 1, then P(A)=P(A1B)+P(A1B4) ≠ 1.

b) Yes.

P(ANBIAUB) < P(AIB)

P(ANBOLAUB)) < P(ANB)

P(AUB)

P(B)

P(B)

P(B)

P(B)

-It is true.

2a) When Event E has exactly 4 independent random numbers > 0.7, its probability is $P(E) = \binom{10}{4} \cdot 0.3^4 \cdot 0.7^6$ = 0.2001...

- Var Var Hy

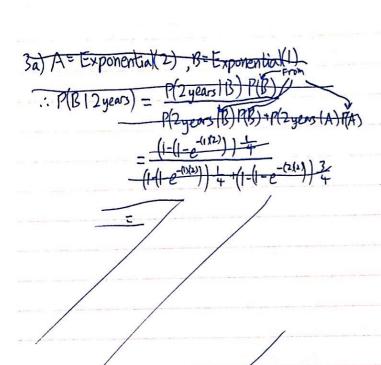
•

0

:
$$P(20 \le x \le 25) = P(x \le 25) - P(x < 20)$$

$$\approx P(25 + N \cdot | 5 = 7/8) - P(25 + 20)$$

$$\approx P(25+N)$$
 \\ \(\frac{15}{15}\) \(\rightarrow \) \(\rightarro



$$f_{x}(t) = \{ \dot{z} \quad \dot{z} \}$$

:: $F_{y}(t) = P(T \le t) = \int_{-\tau}^{\tau} f_{y}(x) dx$
= $\int_{-\tau}^{\tau} dx dx$
= $-\dot{z}$ | \dot{z} |

(b) :-
$$V = \frac{1}{7}$$

:- $f_{\nu}(v) = \{v^{2}, v > 1\}$
:- $E[V] = \int_{0}^{\infty} x f(y) dx$
= $\int_{0}^{\infty} y^{2} dy$
= $\frac{x^{4}}{4} - \frac{1}{4}$

6) Ex From (a), P(Both genders)=1-1(S) =0.913313 .. P(All teams of mixed genders) = P(both genders) = = 0.6354746 >50% -: It is true. 3a) A=Exponential 4(之), B=Exponential(1) P(From B | 2 years) = P(2 years | From B) + P(2 years | From B)

P(2 years | From B) + P(2 years | From A) $=\frac{\left(1-\left(1-e^{-0(x^2)}\right)\right)\cdot\frac{1}{4}}{\left(1-\left(1-e^{-\frac{1}{2}(2)}\right)\right)\frac{1}{4}+\left(1-\left(1-e^{-\frac{1}{2}(2)}\right)\right)\frac{3}{4}}$ = 0.10923 ... b) P(B>A)=(1)e(1)tdt, CDFot A=50 = (1)(t) dt = - 4e-tt/00 = e-1-e-2