Jean Han Choi

1. A,= [0,1/2) Az= [0,1/4)U[1/2,3/4) Az= [0,1/8)U[1/4,3/8)U[1/2,5/8)U[3/4,3/8

P(A,) = 1/2 P(Az) = 1/2 P(Az) = 1/2

P(A, MA2) = P(E0, 1/4) = 1/4 = P(A,) P(A2)

P(A, NA3) = P([0,1/8)U[1/4,3/8) = 1/4 - P(A,)P(A3)

F(ANAS) - P(EO, 1/8) U E 1/2, 5/8)) = 1/4 - P(A)P(A=)

F(A, MA= MA) - P(E0, 1/8)) = 1/8 = P(A) P(A) P(A)

{A.A., A.3 is an independent set

Independen set > {A, A= A=3 pairwise independent

show P(AIC) P(BIC) = P(ANBIC) (>> P(AIBAC) = P(AIC)

1) P(AIC)P(BIC) = P(AABIC) - P(AIC) P(BAC) - P(AABAC)
P(C) P(C)

=) P(AIC) = P(AABAC). P(C) >0
P(BAC)

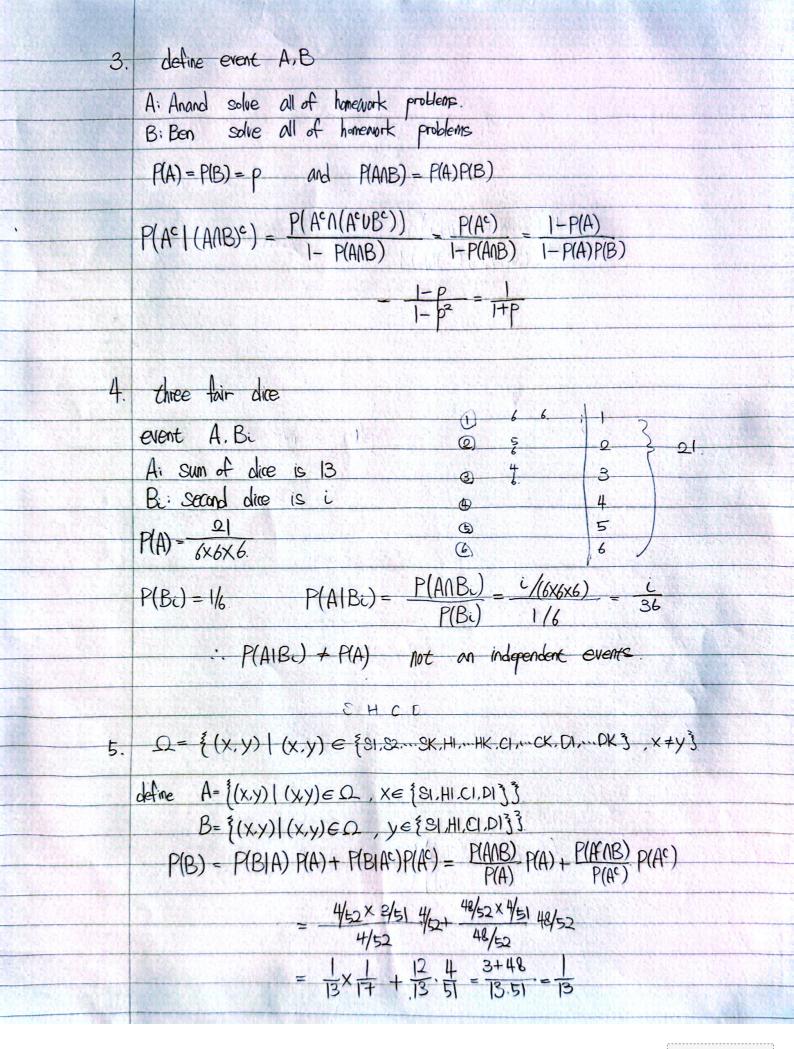
> P(AIC) = P(AIBAC) > P(AIC) = P(AIBAC)

ii) P(AIBAC) - P(AIC) - P(AIC) - P(AIC) - P(AIC) - P(AIC)

P(BAC) - P(AIC) - P(AIC) - P(AIC) - P(AIC)

P(C) - P(AIC) - P

A.E.D.



if Simpsons receive a type 3 parcel
$$(3R)$$
, what is the probability that the parcel that was sent was type $2(S_2)^2$.

$$= \frac{0.1 \times 0.3}{0.15 \times 0.25 + 0.1 \times 0.3 + 0.65 \times 0.45} = \frac{0.03}{0.0375 + 0.03 + 0.2925} = \frac{0.03}{0.36} = 1/12$$

$$P(A) = \frac{13 \times 12}{52 \times 51} \times 4 = \frac{12}{51}$$

$$P(A_1T_2UA_2T_1) = P(A_1T_2) + P(A_1T_1)$$
 : $A_1T_2\cap A_2T_1 = \emptyset$

$$= \frac{16}{51} \times \frac{4}{52} + \frac{4}{51} \times \frac{16}{52} = \frac{64 \times 2}{51 \times 52} = 0.048$$

