PROB 1/17/19 p1

$$P((A \cup B)^c) = P(A^c \cap B^c)$$

DEF

A = EVEN $= \{2, 4, 6\}$ $p = 1/2$

B = PRIME $= \{2, 3, 5\}$ $p = 1/2$

$A \cup B = \{2, 3, 4, 5, 6\}$ $p = 5/6$

$(A \cup B)^c = \{1\}$ $p = 1/6$

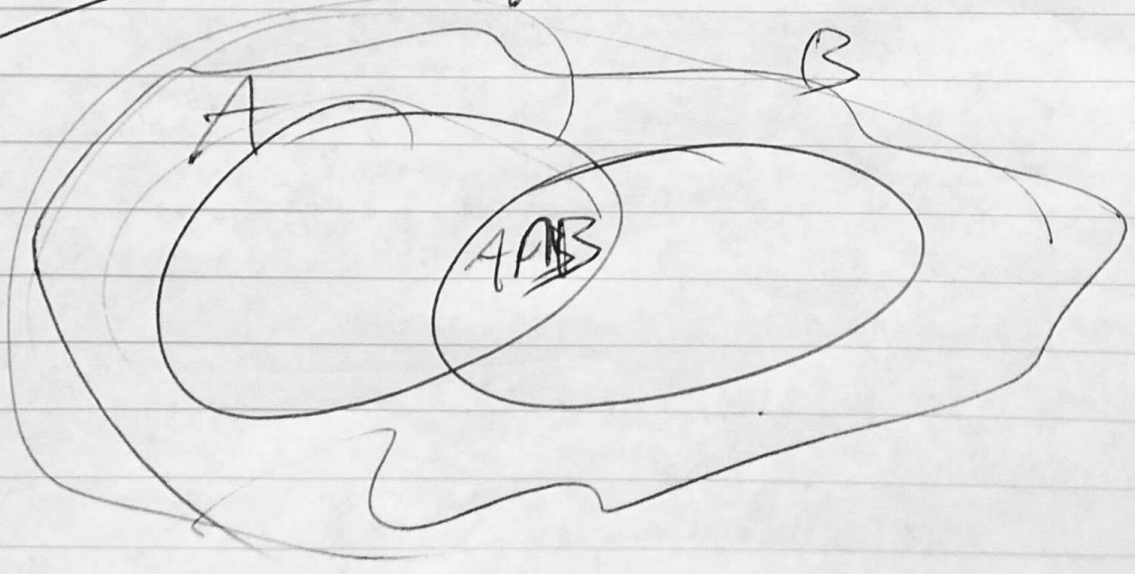
$A^c = \{1, 3, 5\}$ $p = 1/2$

$B^c = \{1, 4, 6\}$ $p = 1/2$

$A^c \cap B^c = \{1\}$ $p = 1/6$

PROOF

VENN



2

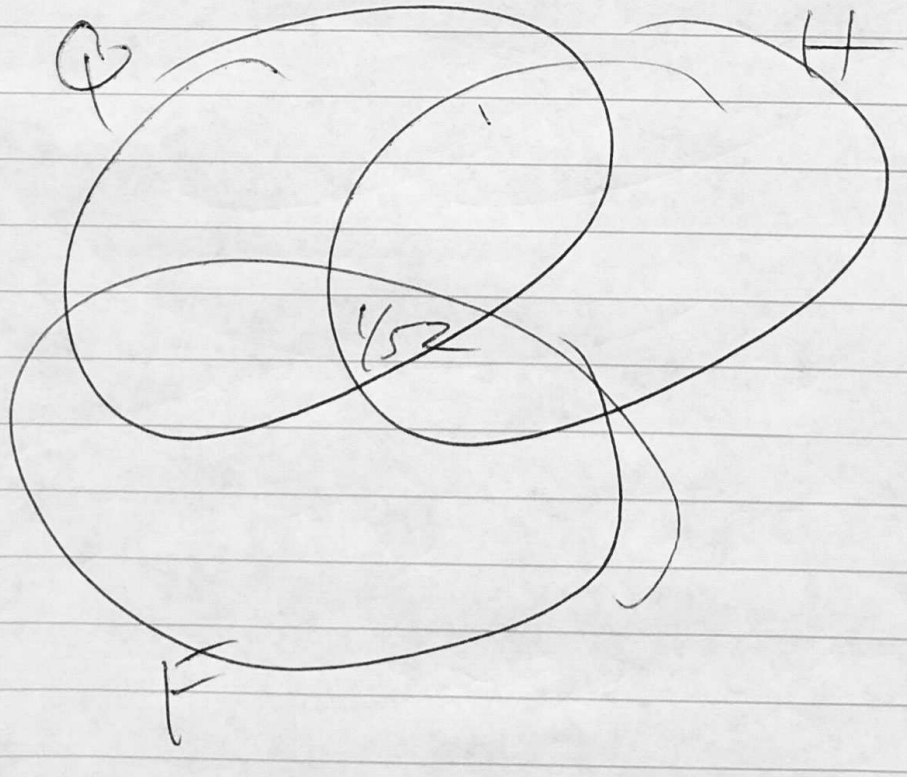
Q H F

$$P(Q \cup H \cup F) = \underset{1/13}{P(Q)} + \underset{4/13}{P(H)} + \underset{4/13}{P(F)}$$

$$- \underset{1/52}{P(Q \cap H)} - \underset{1/13}{P(Q \cap F)} - \underset{4/13}{P(H \cap F)}$$

$$+ \underset{1/52}{P(Q \cap H \cap F)}$$

$$P = \frac{1}{52}(4 + 13 + 16 - 1 - 4 - 4 + 1) = \frac{25}{52}$$?



HALF LIFE 1 SEC

t - LIFE OF AN Nth ATOM

$P(t>1) = \frac{1}{2}$

$P(t>2) = \frac{1}{4}$

$P(t>t_0) = \frac{1}{2^{t_0}} = 2^{-t_0}$

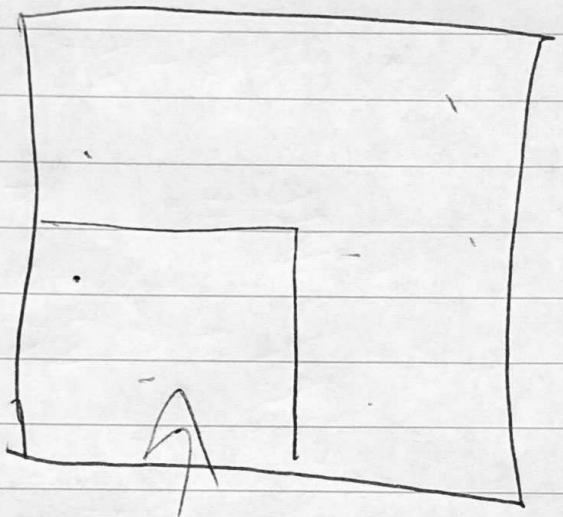
$t_0 = 0 \quad P = 1$

$t_0 = 1 \quad P = \frac{1}{2}$

EXPONENTIAL

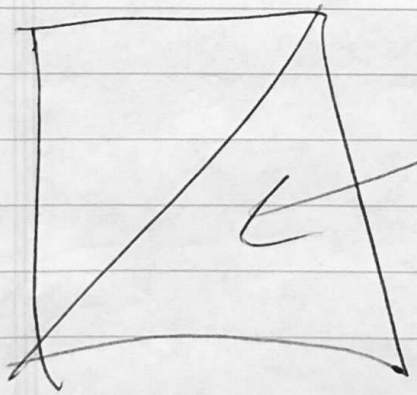
$P(t_0 < t < t_1) = 2^{-t_0} - 2^{-t_1}$

Ex 7.14



$P = \frac{1}{4}$

$P(0 \leq x \leq \frac{1}{2} \text{ & } 0 \leq y \leq \frac{1}{2})$

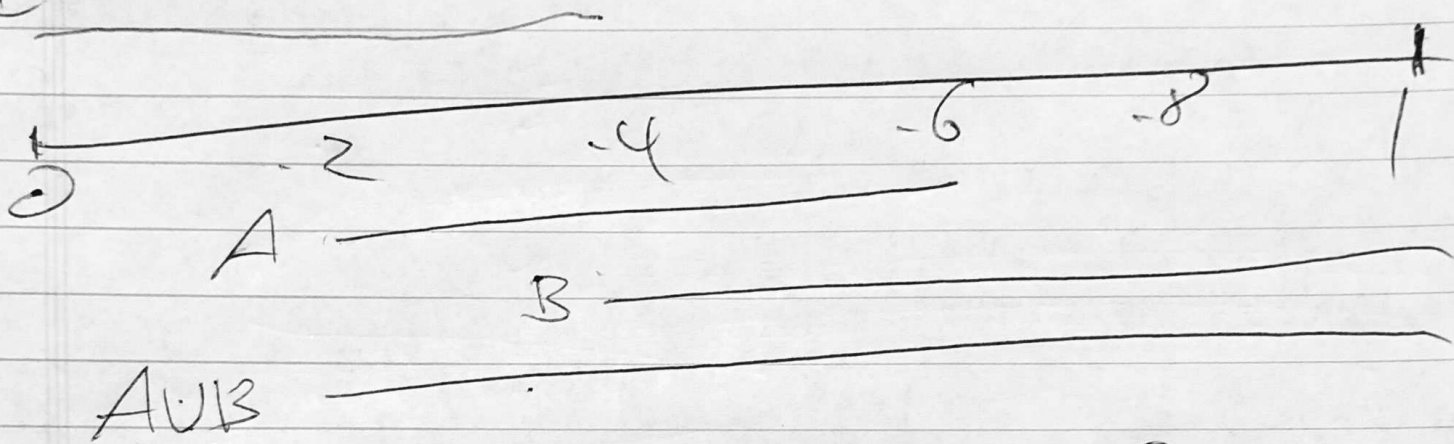


$P = \frac{1}{2}$

ICLICKER

$A \cup B^c$

B^c



$A \cup B$

$.2 \leq x \leq 1 \qquad P = .8$

$P(a \leq x \leq b) = b - a$

e_1 : 1st BIT ARRIVES OK

e_2 2nd

e_3 3rd

$P(e_1) = .9 = P(e_2) = P(e_3)$

$P(e_1 e_2 e_3) = .9 \times .9 \times .9 = .9^3 = .729$