

Math 160 Sp'10 Lowman Exam 2 solutions

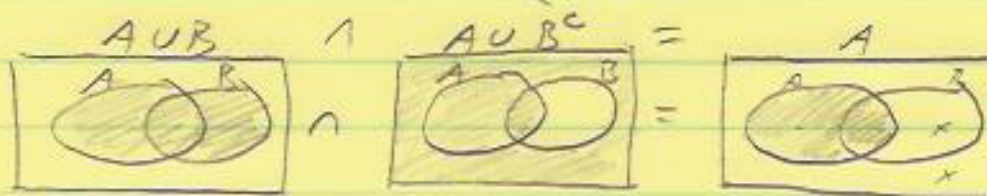
1. (a) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$ } independent
 $= P(A) + P(B) - P(A) \cdot P(B)$
 $= \frac{1}{3} + \frac{1}{3} - \left(\frac{1}{3}\right)\left(\frac{1}{3}\right) = \boxed{\frac{5}{9}}$

(b) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$ } mutually exclusive
 $= P(A) + P(B)$
 $= \frac{1}{3} + \frac{1}{3} = \boxed{\frac{2}{3}}$

2.

	B	\bar{B}	$\odot \Rightarrow$ Given values
A	$\odot \Rightarrow A \cup B^c$.1	\odot .2	.3
\bar{A}	.1	\odot .6	\odot .7
	\odot .2	.8	\odot 1

$$P(A \cup B \mid A \cup B^c) = \frac{P(A \cup B \cap (A \cup B^c))}{P(A \cup B^c)}$$



$$P = \frac{P(A)}{P(A \cup B^c)} = \frac{.3}{.1 + .2 + .6} = \frac{.3}{.9} = \boxed{\frac{1}{3}}$$

(1)