

MCS 358 MATH MODEL BUILDING

Problem on probabilities and conditional probabilities of unions, intersections, and complements

Assume that A and B are events with $P(A) = 0.30$ and $P(B) = 0.20$. Calculate the following probabilities and conditional probabilities for each of the given information situations.

GIVEN INFORMATION		$P(A \cup B)$	$P(A \cap B)$	$P(\bar{A} \cup \bar{B})$	$P(A B)$	$P(\bar{A} B)$
A and B are disjoint.						
A and B are independent.						
$P(A \cap B) = 0.10$.						
$P(A \cup B) = 0.45$.						
$P(A B) = 0.40$.						
$P(B A) = 0.50$.						
Nothing is known about how A and B are related. (Give min and max values.)	Min Max					