Advanced Algebra- Assignment #16

Unit 8 Probability

The Probability of the Union of two Events:

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If A and B are events in the same sample space, then the probability of A or B occurring is P(AUB) = P(A) + P(B) − P(A∩B)
If A∩ B is empty than A and B are called **mutually exclusive events** and P (AU B)= P(A) + P(B)

Find the indicated probability. State whether A and B are mutually exclusive.

1) P(A)= .55

   P(B)= .30

P(AUB)=.65

P(A∩B)=

2) P(A)=.5

   P(B)= .30

P(AUB)=

P(A∩B)= .2

3) P(A)=.25

   P(B)=

P(AUB)=.90

P(A∩B)= 0

4) P(A)=.75

P(B)=.20

P(AUB)=

P(A∩B)=0

5) P(A)=$\frac{11}{15}$

P(B)= $\frac{8}{15}$

P(AUB)=

P(A∩ B) $= \frac{4}{15}$

6) P(A)=$\frac{1}{3}$

P(B)=$\frac{1}{4}$

P(AUB)= $\frac{1}{3}$

P(A∩ B)=

7) The probability that Mick will make the hockey team is $\frac{2}{3}$. The probability that he will make the swimming team is $\frac{3}{4}$. If the probability that he makes both teams is $\frac{1}{2}$, what is the probability that he makes at least one of the teams? That he makes neither of the teams.

Draw a Venn Diagram to represent this situation.

8) Of the 148 students honored at an academic awards banquet, 40 won awards for mathematics and 82 won awards for English. 12 of these students won awards in both mathematics and English. One of the 148 students is chosen at Random to be interviewed for a newspaper article. What is the probability that the students won an award in math or English?

Make a Venn Diagram to represent this situation

Find the following:

P(A)

P(B)

P(A∩ B)

P(A∪ B)

P(A|B)

P(B|A)