Test -- Probability name _____

[1] For events A and B it is known that $P(A) = 0.1,\ P(B) = 0.5$, and $P(A' \cap B') = 0.45$.

[a] Find $P(A \cap B)$. [b] Find $P(A \cup B)$. [c] Find $P(A' \cap B)$.

[d] Are events A and B independent? Explain how you know.

[2] For events C and D it is known that $P(C \cap D') = 0.3,\ P(C' \cap D) = 0.4$, and $P(C \cup D) = 0.9$.

[a] Find $P(C \cap D)$ [b] Find $P(C' \cap D')$ [c] Find $P(C)$

[c] Are C and D independent events? Explain how you know.

[3] For events E and F it is known that $P(E) = 0.20,\ P(E \cup F) = 0.70$, and $P(E \cap F) = 0.10$. Find $P(F)$

[4] A fair coin is tossed and a fair die is rolled.
[a] Find P(3 or heads)

[b] Find P(3 and heads)

[c] Find P(larger than 2 and tails)

[d] Find P(larger than 2 or tails)

[5] A bowl contains 3 red marbles and 5mgreen marbles. Two marbles are drawn without replacement.
[a] Draw a probability tree to illustrate this experiment.

[b] Find P(two red marbles)

[c] Find P(at least one red marble)

[d] Find the probability that the second marble is red given that the first one is green.

[6] In a certain school, there are 70 IB students. 25 take HL Math, 35 take HL Bio and 20 take neither of those. Find the probability that a student who takes HL Bio also takes HL Math.

[7] For two events A and B, it is known that $P(A|B) = 0.4$ and $P(A \cap B) = 0.2$. Find $P(A)$.

[8] Two cards are drawn from a standard 52-card deck without replacement and the number of clubs is counted. (There are 13 clubs in the deck.)
[a] Find the probability that no clubs are drawn.

[b] Find the probability that at least one club is drawn.