

A drug manufacturer has developed **Amicitia**, a home drug test kit (to identify individuals using illegal substances) which has the following results shown below in clinical trials.

		Actual Use			
		Use marijuana only (an illegal substance)	Use other drugs (illegal substances) other than marijuana	Do not use ANY illegal substances	
Drug Test for illegal substances	Positive	540	411	49	1000
	Negative	45	12	443	500
		585	423	492	1500

Show all work and use mathematical notation!

example: $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

For one of 1500 the test subjects above selected at random, determine the probability of selecting a person who:

1. Uses only marijuana.
2. DOES use illegal substances AND tests positive
3. Does NOT use illegal substances and tests positive.
4. DOES use illegal substances OR tests positive.
5. Testing positive given they use marijuana AND other illegal drugs.
6. Tests positive given they do use marijuana OR other illegal drugs.
7. If THREE different persons were selected at random from the 1500 drug kit test subjects, what is the probability that the 1st one tested negative for any illegal drug and the 2nd and 3rd persons tested positive using some type of illegal drug.
8. If TWO (2) different persons are selected at random from the 1500 drug test kit subjects, what is the probability that they both tested positive for drug use AND were in fact, NOT using illegal drugs.
9. What is confusion of the inverse?