Qn -In parts (a) and (b), identify whether the events are disjoint,

independent, or neither.

(a) You and a randomly selected student from your class both earn A's in this course.

(b) You and your class study partner both earn A's in this course.

(c) If two events can occur at the same time, must they be dependent?

(d) Can events be both disjoint and independent? (explain in a line or two)

Answer:

(a) If the class is not graded on a curve,

they are independent. If graded on a curve,

then neither independent nor disjoint { unless

the instructor will only give one A, which is a

situation we will ignore in parts (b) and (c).

(b) They are probably not independent: if you

study together, your study habits would be re-

lated, which suggests your course performances

are also related.

(c) No. See the answer to

part (a) when the course is not graded on a

curve. More generally: if two things are un-

related (independent), then one occurring does

not preclude the other from occurring.

(d) No. It is true that if A occurs, the probability of B occurring is zero (P(B. ... A) = 0, the requirement that an **event** be contained by A does affect the probability of B occurring, so A and B are not **independent**. Thus, if A and B are **mutually exclusive**, they are not **independent**.