See back

Curve: add 4 pts.

Key

MA 381 Probability with Statistical Applications, Exam I

There are 8 problems on this exam each worth 5 points for a total of 40 points. Partial credit will be given for some problems; show your work.

1: A fair 3-sided die (a football with three ridges) is tossed twice. A Venn diagram of the sample space is provided below. Note that $(1, 2)$ denotes 1 on the first toss and 2 on the second.

S

(1,1)	(1,2)	(1,3)
(2,1)	(2,2)	(2,3)
(3,1)	(3,2)	(3,3)

Let A be the event "2nd toss is 1"
Let B be the event "both tosses equal."

i. Compute $P(A|B)$.

ii. Are events A and B independent? Mathematically justify your answer to get credit.

2 i. $P(A|B) = \frac{N(A \cap B)}{N(B)} = \frac{1}{3}$

3 ii. $P(A) = \frac{N(A)}{N(S)} = \frac{3}{9} = \frac{1}{3} = P(A|B)$ so

A and B independent.