

Name: _____

Conditional Probability

Exercise 1: A group of students were asked about their CD collection. The probability that a student owned the Stereo phonics album was 0.35. The probability that they owned the latest Manic Street Preachers' album was 0.4. However, if you only asked the students that owned the Stereo phonics album, there was a probability of 0.6 that they would also own the Manic Street Preachers album. Find:

- 1) The probability that a student, chosen at random, will have both albums.
- 2) The probability that a student with the Manic album will also have the Stereo phonics album.
- 3) The probability that a student has the Stereo phonics album, but not the Manic album.
- 4) The probability that a student has neither album.

Exercise 2: A coin is flipped three times. Event A consists of observing exactly 2 heads. Event B consists of observing one or more tails.

- 1) List the members of event A.
- 2) List the members of event B.
- 3) Find the union of event A and event B.
- 4) Find the intersection of event A and event B.
- 5) Find $P(A|B)$

Exercise 3: A change was proposed in the mathematics curriculum at a college. The mathematics majors were asked whether they approved of the proposed change. The results of the survey follow.

	Approved	No opinion	Did not approve
Female	21	6	12
Male	14	10	7

Suppose that a mathematics major is selected by chance. Find the probability that

- 1) The student is female, given no opinion.
- 2) The student approves of the proposed change, given the student is male.
- 3) The student is male, given the student does not approve of the proposed change.
- 4) The student is male and approves of the proposed change.