

HW #2

Please, write clearly and justify all your steps, to get proper credit for your work.

(1)[2 Pts] A bowl contains 7 blue chips and 3 red chips. Two chips are drawn successively and without replacement. Compute the probability that the first draw is a red chip and the second draw is a blue chip.

(2)[2 Pts] From a regular deck of 52 playing cards, cards are drawn successively and without replacement. Compute the probability that the third spade appears on the sixth draw.

(3)[6 Pts] Two cards are drawn successively and without replacement from a 52-card deck of playing cards. Compute the probability of drawing:

- (i) two hearts;
- (ii) a heart on the first draw, a club on the second draw;
- (iii) a heart on the first draw, an ace on the second draw.

(4)[6 Pts] A survey organization asked respondents from 3 different geographical regions what their views were on a certain topic. The answers are reported below.

	East	Midwest	West
Pessimistic	100	90	110
Optimistic	40	70	90
Total	140	160	200

- (i) What is the probability that a randomly selected respondent is pessimistic?
- (ii) What is the conditional probability that a respondent from the Midwest is optimistic?

- (iii) What is the conditional probability that a respondent who is optimistic comes from the Midwest?
- (iv) Are the views of the respondents independent on the geographical regions? Justify your answer. If no, with the same marginal totals, specify what the numbers for the West region would have been, had the two factors been independent.