Part of HW 6

1. Problem modified from Don A. Berry, *Basic Statistics: A Bayesian Perspective, 1995*. A Duke undergraduate is interested in whether opposites attract. She is uncertain as to what proportion of the population is attracted to persons with personality characteristics opposite of their own. She considers 4 models, p=.25, .50, .75, 1. Here p is the percent of the population that is attracted to people different from themselves. Before seeing any data, she believes each model is equally likely. She conducts her own study of 25 female undergraduates by asking them questions concerning their own personality of their ideal mate. The questionnaire asked respondents to rate whether each of 5 adjectives (introverted, easy-going, studious, serious, gregarious) described themselves. They were also asked whether each adjective described their ideal mate. The researcher took *opposites attract* to mean that the respondent answers differently for themselves and their ideal mate on at least 2 of the 5 adjectives. In this sample of 25, only 8 were attracted to opposites.

a) What are the researcher’s probabilities for each of the 4 models after seeing the data?

b) After seeing the data, what’s the probability that more than 50% of the population is attracted to opposites?