

Name _____
Date: _____

MRS22-Additional Work 4

1. Sean's team has a baseball game tomorrow. He pitches 50% of the games. There is a 40% chance of rain during the game tomorrow. If the probability that it rains given that Sean pitches is 40%, it can be concluded that these two events are

- (1) independent
- (2) dependent
- (3) mutually exclusive
- (4) complements

3. The set of data in the table below shows the results of a survey on the number of messages that people of different ages text on their cell phones each month.

| Age Group | Text Messages per Month | | |
|-----------|-------------------------|-------|---------|
| | 0-10 | 11-50 | Over 50 |
| 15-18 | 4 | 37 | 68 |
| 19-22 | 6 | 25 | 87 |
| 23-60 | 25 | 47 | 157 |

If a person from this survey is selected at random, what is the probability that the person texts over 50 messages per month given that the person is between the ages of 23 and 60?

- (1) $\frac{157}{229}$
- (2) $\frac{157}{312}$
- (3) $\frac{157}{384}$
- (4) $\frac{157}{456}$

5.

2. The probability that Gary and Jane have a child with blue eyes is 0.25, and the probability that they have a child with blond hair is 0.5. The probability that they have a child with both blue eyes and blond hair is 0.125. Given this information, the events blue eyes and blond hair are

- I: dependent
- II: independent
- III: mutually exclusive

- (1) I, only
- (2) II, only
- (3) I and III
- (4) II and III

4. Which scenario is best described as an observational study?

- (1) For a class project, students in Health class ask every tenth student entering the school if they eat breakfast in the morning.
- (2) A social researcher wants to learn whether or not there is a link between attendance and grades. She gathers data from 15 school districts.
- (3) A researcher wants to learn whether or not there is a link between children's daily amount of physical activity and their overall energy level. During lunch at the local high school, she distributed a short questionnaire to students in the cafeteria.
- (4) Sixty seniors taking a course in Advanced Algebra Concepts are randomly divided into two classes. One class uses a graphing calculator all the time, and the other class never uses graphing calculators. A guidance counselor wants to determine whether there is a link between graphing calculator use and students' final exam grades.

A public opinion poll was conducted on behalf of Mayor Ortega's reelection campaign shortly before the election. 264 out of 550 likely voters said they would vote for Mayor Ortega; the rest said they would vote for his opponent.

Which statement is *least* appropriate to make, according to the results of the poll?

- (1) There is a 48% chance that Mayor Ortega will win the election.
- (2) The point estimate (\hat{p}) of voters who will vote for Mayor Ortega is 48%.
- (3) It is most likely that between 44% and 52% of voters will vote for Mayor Ortega.
- (4) Due to the margin of error, an inference cannot be made regarding whether Mayor Ortega or his opponent is most likely to win the election.