

Math 153 - Quiz 5

September 28, 2017

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (6 points) A large jar contains 5 blue marbles, 8 red marbles, and 2 green marbles. A single marble is selected at random.

(a) What is the sample space for this probability experiment?

$\{ \text{red, blue, green} \}$

(b) Are the outcomes in your sample space equally likely?

No

(c) What is the probability of each outcome?

$$P(\{\text{red}\}) = \frac{8}{15}, \quad P(\{\text{blue}\}) = \frac{5}{15}, \quad P(\{\text{green}\}) = \frac{2}{15}$$

(d) Are your probabilities theoretical, experimental, or subjective?

THEORETICAL

(e) If B is the event of selecting a blue marble, then what is \bar{B} ?

$$\bar{B} = \{ \text{red, green} \}$$

2. (3 points) In studying the effectiveness of a certain test preparation course, the following data were collected from a random sample of people who took the test.

	Passed Test	Failed Test	
Took Test-Prep Class	137	43	180
Did not take Test-Prep Class	213	105	318
	350	148	498

(a) Based on the data, what is the probability that a person passes the test?

$$\frac{350}{498}$$

(b) Based on the data, what is the probability that a person takes the test-prep class?

$$\frac{180}{498}$$

(c) Are your probabilities above theoretical, experimental, or subjective?

EXPERIMENTAL

3. (1 point) What would you tell a person who says the probability of obtaining tails on a coin flip is 50?

50 IS NOT A PROBABILITY.

PROBABILITIES MUST BE BETWEEN 0 AND 1.

Do you mean 0.50 or 50% ?