

# Math 153 - Quiz 4

March 6, 2014

Name key

Score \_\_\_\_\_

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

1. (6 points) A jar contains 4 green marbles, 9 blue marbles, and 6 red marbles. A marble is selected at random.

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

$$\{g, b, r\}$$

- (b) What is the probability of each outcome in your sample space?

$$P(\{g\}) = \frac{4}{19}, \quad P(\{b\}) = \frac{9}{19}, \quad P(\{r\}) = \frac{6}{19}$$

- (c) Are your probabilities in part (b) experimental, theoretical, or subjective?

THEORETICAL

- (d) If  $A$  is the event of drawing a blue marble, then what is  $\bar{A}$ ? What is the probability of  $\bar{A}$ ?

$\bar{A}$  = EVENT OF DRAWING A GREEN OR RED MARBLE

$$P(\bar{A}) = \frac{10}{19}$$

- (e) Jerry actually carried out the experiment 87 times. In all, he selected 39 blue marbles, 19 green marbles, and 29 red marbles. What are his experimental probabilities?

$$P(\{b\}) = \frac{39}{87}, \quad P(\{g\}) = \frac{19}{87}, \quad P(\{r\}) = \frac{29}{87}$$

✓ 275 ALL TOGETHER

2. (4 points) A teacher collected the following data on her students.

	Completed assignments	Did not complete assignments	
Passed class	163	31	194
Failed class	9	72	81
	<u>172</u>	<u>103</u>	

A student is selected at random.

(a) What is the probability that the student completed assignments?

$$\frac{172}{275}$$

(b) What is the probability that the student failed the class?

$$\frac{81}{275}$$

(c) What is the probability that the student completed assignments and passed the class?

$$\frac{163}{275}$$

(d) What is the probability that the student completed assignments or passed the class?

$$163 + 31 + 9 = 203$$

$$\frac{203}{275}$$