

Math 206 - Quiz 3

September 15, 2010

Name key

Score _____

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

1. (2 points) A letter is selected at random from the following box:

T A R Z A N T O N E

- (a) What is the event of selecting a vowel?

$\{A, O, E\}$

THE PROBABILITY OF THIS EVENT IS $\frac{4}{10}$

- (b) What is the probability of selecting a consonant?

$$1 - \frac{4}{10} = \frac{6}{10}$$

2. (2 points) Jimmy found a object that had a bunch of flat sides. There was a star-shaped figure on one of the sides. He tossed the object 15 times, and it landed star-side-up 6 of those times. Jimmy assigned a probability of $\frac{6}{15}$ to the event of the object landing star-side-up.

- (a) Did Jimmy assign an experimental probability or a theoretical probability?

HE ACTUALLY DID THE EXPERIMENT AND ASSIGNED PROB TO BE $\frac{\# \text{ OF FAVORABLE TRIALS}}{\text{TOTAL \# OF TRIALS}}$

- (b) What must Jimmy do to assign the other type of probability?

HE MUST COUNT THE NUMBER OF STARS AND SIDES.

$$\text{THEO PROB} = \frac{\# \text{ OF STAR SIDES}}{\# \text{ OF SIDES}}$$

3. (1 point) Suppose that A and B are events with $P(A) = 0.24$, $P(\bar{B}) = 0.45$, and $P(A \cup B) = 0.68$. Find $P(A \cap B)$.

$$P(B) = 0.55$$

$$0.68 = 0.24 + 0.55$$

$$- P(A \cap B)$$

$$\Rightarrow P(A \cap B) = 0.24 + 0.55 - 0.68 = \boxed{0.11}$$