

Math 153 - Quiz 5

February 26, 2015

Name key

Score _____

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

1. (2 points) The odds against the event A are 5:17. Determine the probability of A and the odds in favor of A .

$$\text{ODDS IN FAVOR ARE } \frac{17}{5}$$

$$P(A) = \frac{17}{17+5} = \frac{17}{22}$$

2. (4 points) Suppose A and B are events such that $P(\bar{A}) = 0.34$, $P(B) = 0.53$, and $P(A \cup B) = 0.90$.

$$P(A) = 0.66$$

- (a) Determine $P(A \cap B)$.

$$P(A \cap B) = P(A) + P(B) - P(A \cup B) = 0.66 + 0.53 - 0.90 = 0.29$$

- (b) Are the events A and B mutually exclusive? Explain.

$$\text{No, } P(A \cap B) \neq 0$$

- (c) What are the odds in favor of A ?

$$\frac{0.66}{0.34} = \frac{66}{34} = \frac{33}{17}$$

3. (4 points) In a study of students' homework habits, a professor collected the following data.

| | Did homework | Did not do homework | |
|---------------------|--------------|---------------------|-----------|
| Received A or B | 97 | 32 | 248 TOTAL |
| Received C, D, or F | 41 | 78 | |

A student from this study is selected at random.

- (a) What is the probability that the student did homework and received A or B?

$$\frac{97}{248}$$

- (b) What is the probability that the student did not do homework or received C, D, or F?

$$\frac{32 + 78 + 41}{248} = \frac{151}{248}$$