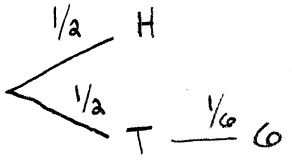
Math 206 - Quiz 5
March 2, 2011

Name key
Score _____

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

1. (1 point) A coin is flipped and then a die is rolled. What are the odds against getting a head or a six?

PROB OF HEAD OR 6 IS $\frac{1}{2} + \frac{1}{12} = \frac{7}{12} = \frac{7}{5+7}$



ODDS AGAINST ARE $\frac{5}{7}$

2. (1 point) The odds in favor of event A of 7/3. Find $P(A)$.

$\frac{7}{3} = \frac{\text{FAVORABLE}}{\text{UNFAVORABLE}} \Rightarrow P(A) = \frac{\text{FAVORABLE}}{\text{TOTAL}} = \frac{7}{10}$

3. (2 points) 8% of the residents of Hunter's Cove are members of Club XYZ. 50% of the residents are members of Club PDQ. 4% of the residents are members of both clubs. Is membership in one club independent of membership in the other?

$P(A)$ = PROB THAT A RESIDENT IS A MEMBER OF XYZ = 0.08

$P(B)$ = PROB THAT A RESIDENT IS A MEMBER OF PDQ = 0.50

$P(A \cap B) = 0.04$

$P(A) \cdot P(B) = (0.08)(0.50) = 0.04 = P(A \cap B)$

SINCE $P(A)P(B) = P(A \cap B)$, MEMBERSHIPS ARE INDEPENDENT.

4. (1 point) A letter is selected at random from the word *MISSISSIPPI*. Make up a different dollar value to associate with each different letter. Then find the expected value.

LETTER	VALUE	PROB
M	\$5	$\frac{1}{11}$
I	\$3	$\frac{4}{11}$
S	\$2	$\frac{4}{11}$
P	\$4	$\frac{2}{11}$

EXPECTED VALUE =

$(\$5)\left(\frac{1}{11}\right) + (\$3)\left(\frac{4}{11}\right) + (\$2)\left(\frac{4}{11}\right) + (\$4)\left(\frac{2}{11}\right)$

$= \$3$