Math 532 Quiz 3 Name: _____

1. Let $S = \{\omega_1, \omega_2, \omega_3\}$, $P(\omega_1) = P(\omega_2) = P(\omega_3) = 1/3$. Define random variables X and Y by

$$X(\omega_1) = 1, \quad X(\omega_2) = 2, \quad X(\omega_3) = 3;$$
$$Y(\omega_1) = 2, \quad Y(\omega_2) = 3, \quad Y(\omega_3) = 1.$$

Let $F_{X+Y}(x)$ be the cumulative distribution function of $X + Y$. Fill in the following blanks:

$$F_{X+Y}(1) = \_\_\_, \quad F_{X+Y}(2) = \_\_\_, \quad F_{X+Y}(3) = \_\_\_,$$

$$F_{X+Y}(4) = \_\_\_, \quad F_{X+Y}(5) = \_\_\_, \quad F_{X+Y}(6) = \_\_\_.$$

2. First throw a fair die, then throw as many fair coins as the number shown on the die. If 3 heads are obtained, what is the probability that the die showed 6?

Answer _____