

Advanced Functions and Modeling
Counting and Probability
Quiz 4

Name Key

1. A red, a green, and a yellow die are tossed. What is the probability that all 3 dice show a 4?

(3)

$$\frac{1}{6} \cdot \frac{1}{6} \cdot \frac{1}{6}$$

$$\frac{1/216}{0.004629}$$

2. Andrew has a bag that contains 4 red, 6 green, and 3 brown candies. He randomly chooses and eats 3 candies from the bag. What is the probability that he will choose all green candies?

(3)

$$\frac{6}{13} \cdot \frac{5}{12} \cdot \frac{4}{11}$$

$$\frac{10/43}{0.06993}$$

3. A card is drawn from a standard deck of 52 cards.

a. What is the probability that the card is red or a queen?

(3)

$$\frac{26}{52} + \frac{4}{52} - \frac{2}{52}$$

$$\frac{7/13}{0.5384}$$

b. What is the probability that the card is a spade or a diamond?

(3)

$$\frac{13}{52} + \frac{13}{52}$$

$$\frac{1/2}{0.50}$$

4. A pair of dice is thrown. Find the probability that the dice show different numbers given that their sum is less than 9.

(3)

$$\frac{22}{26}$$

$$\frac{11/13}$$

5. A card is drawn from a standard deck of cards. You win \$100 if it is the 8 of clubs, \$50 if it is an ace, and \$25 if it is a face card. To play the game, you have to pay \$5. What is the expected value of this game?

(4)

95	45	20	-5
$\frac{1}{52}$	$\frac{4}{52}$	$\frac{12}{52}$	$\frac{35}{52}$

$$\frac{\$6.54}{}$$

6. The following table shows the results of a survey conducted about the number of pets living in households in Cary. Use the data to help find the expected number of pets living with families in Cary.

(4)

Number of Pets (x)	Frequency	P(x)
0	23	$\frac{23}{100}$
1	31	$\frac{31}{100}$
2	27	$\frac{27}{100}$
3	12	$\frac{12}{100}$
4	7	$\frac{7}{100}$

100

$$\frac{1.49}{}$$