

Name: _____ Hour: _____

Probability Review

- 1) Given a standard deck of 52 cards, 3 cards are dealt without replacement. Using this situation, answer the questions below.
 - a) What is the probability that all three cards are queens?
 - b) Let the first card be the queen of hearts and the second card be the queen of diamonds. Is the probability of drawing the two cards independent? Explain.
 - c) If the first card is a queen, what is the probability that the second card will not be a queen?
 - d) If the first two cards are queens, what is the probability that you will be dealt three queens?
 - e) If two of the three cards are queens, what is the probability that the other card is not a queen?

- 2) Given a standard deck of 52 cards, 3 cards are dealt. If each card is replaced in the deck (and the deck is well shuffled) after being dealt answer the questions below.
 - a) What is the probability that all three cards are queens?
 - b) Let the first card be the queen of hearts and the second card be the queen of diamonds. Is the probability of drawing the two cards independent? Explain.
 - c) If the first card is a queen, what is the probability that the second card will not be a queen?
 - d) If the first two cards are queens, what is the probability that you will be dealt three queens?
 - e) If two of the three cards are queens, what is the probability that the other card is not a queen?

3) A bag contains 3 red marbles, 5 green marbles, and 2 blue marbles. Two consecutive draws are made from the bag (without replacement of the first draw). Find the probability of each event:

- a) $p(\text{red, blue}) = \underline{\hspace{2cm}}$
- b) $p(\text{blue, blue}) = \underline{\hspace{2cm}}$
- c) $p(\text{both draws were neither red or green}) = \underline{\hspace{2cm}}$
- d) $p(\text{red, not red}) = \underline{\hspace{2cm}}$

4) A bag contains 3 red marbles, 5 green marbles, and 2 blue marbles. Two consecutive draws are made from the bag (with replacement). Find the probability of each event:

- a) $p(\text{red, blue}) = \underline{\hspace{2cm}}$
- b) $p(\text{blue, blue}) = \underline{\hspace{2cm}}$
- c) $p(\text{both draws were neither red or green}) = \underline{\hspace{2cm}}$
- d) $p(\text{red, not red}) = \underline{\hspace{2cm}}$

5) You are dealt two cards (without replacement) from a standard deck of 52 cards.

- a) What is the probability that the first card you are dealt is an ace?
- b) If the first card was an ace, what is the probability that the second card you are dealt is a Jack?
- c) What is the probability that you are dealt an Ace and a Jack in any order?
- d) If an ace is worth 11 points and a 10, Jack, Queen, and King are worth 10 points each, what is the probability that you will obtain 21 points with two cards?

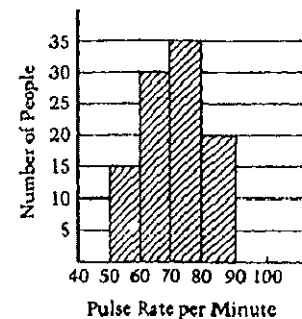
6) You survey your classmates to determine their favorite flavor of ice cream. You think males may prefer vanilla and females may prefer chocolate, so you tally their responses separately. You found the following results:

	Vanilla	Chocolate	Other
Males	23	10	10
Females	8	17	9

- a) What is the probability that a randomly selected student prefers chocolate?
- b) What is the probability that a randomly selected student is a female and prefers chocolate?
- c) If the student chosen is a female, what is the probability that she prefers chocolate?
- d) Are the events "female" and "prefers chocolate" independent or dependent? Explain.

- 7) The pulse rate for a group of 100 people is shown in the graph. What is the average pulse rate per minute for these 100 people? (Note: Use the midpoint of each interval to represent the pulse rate for the entire interval. For example, 55 would be used for the pulse rate of the 15 people in the 50-60 group.)

PULSE RATE FOR 100 PEOPLE



- 8) Matthew shoots 6 free throws. Let x = # shots that Matthew makes. Let $p(x)$ represent the probability of making that many shots. Use the table below to answer the following.

X	0	1	2	3	4	5	6
P(x)	0.0	0.01	0.06	0.19	0.32	0.30	0.12

- a) What is the probability that Matthew makes 3 free throws?
- b) What is the probability that Matthew makes at least 3 free throws?
- c) What is the probability that Matthew misses at least 3 free throws?
- d) How many free throws do you expect Matthew to make?
- 9) If you roll a die, the probability that you land on a "one" is $1/6$. If you roll the same die twice, what is the probability that:
- a) You land on two "ones" in a row?
- b) You never land on a "one"?
- c) You land on at least one "one"?
- 10) A sack contains 7 blue, 3 red, and 2 green marbles. If you draw a marble, replace it, and then draw another marble, what is the probability that:
- a) $p(\text{red, green}) = \underline{\hspace{2cm}}$
- b) $p(\text{red, red}) = \underline{\hspace{2cm}}$
- c) $p(\text{at least one blue}) = \underline{\hspace{2cm}}$
- d) $p(\text{red or blue}) = \underline{\hspace{2cm}}$