Name_____ ID: 1

Extra Credit: Probability

Date_____ Period____

Represent the sample space using set notation.

1) A room in a house needs to be painted. The room can be painted either white or yellow.

2) You flip a coin once.

3) When a button is pressed, a computer program outputs a random even number greater than 0 and less than 12. You press the button once.

4) An ice cream stand offers four flavors: strawberry, chocolate, vanilla, and mint chocolate chip.

5) A basket contains one apple, one peach, and one orange. You randomly pick a piece of fruit to eat. Then you pick another piece to eat later.

6) You flip a coin and then roll a six-sided die.

7) A basket contains two apples and a peach. You randomly pick a piece of fruit to eat. Then you pick another piece to eat later.

8) A basketball player attempts two free throws. Each attempt results in a score or a miss.

Find the number of possible outcomes in the sample space.

9) A bagel shop has two types of bagels: plain and onion.

10) A jewelry store sells rings with either a ruby, sapphire, emerald, or diamond gemstone.

11) A pizza stand offers hand-tossed, pan, and thin-crust pizza.

12) The band must decide when to meet for a practice. The possible times are 3, 4, or 5 p.m.

13) A hot dog stand offers both small and large hot dogs. Each hot dog can be ordered plain or with ketchup.

14) A spinner can land on either red or blue. You spin twice.

15) A sandwich shop has three types of sandwiches: ham, turkey, and chicken. Each sandwich can be ordered with white bread or multi-grain bread.

16) You flip a coin and then roll a six-sided die.

17) A spinner can land on either red or blue. You spin nine times.

18) The chess club must decide when and where to meet for a practice. The possible days are Monday, Tuesday, Wednesday, or Thursday. The possible times are 3, 4, or 5 p.m. There are nine classrooms available.

19) A padlock's combination is four digits long.

20) A spinner can land on either red or blue. You spin six times and then roll a six-sided die.

Determine whether the scenario involves independent or dependent events.

21) A bag contains eight red marbles and three blue marbles. You randomly pick a marble and then return it to the bag before picking another marble. The first marble is red and the second marble is blue.

22) Your sock drawer has four white socks, six brown socks, and two black socks. You randomly pick a sock and put it on your left foot and then pick another sock and put it on your right foot. You leave the house with a white sock on your left foot and a brown sock on your right foot.

23) A spinner has an equal chance of landing on each of its seven numbered regions. You spin twice. The first spin lands in region seven and the second spin lands in region six.

24) There are six nickels and seven dimes in your pocket. You randomly pick a coin out of your pocket and place it on a counter. Then you randomly pick another coin. Both coins are nickels.

25) There are four nickels and four dimes in your pocket. You randomly pick a coin out of your pocket and then return it to your pocket. Then you randomly pick another coin. The first coin is a nickel and the second coin is a dime.

26) You flip a coin and then roll a fair six-sided die. The coin lands tails-up and the die shows an odd number.

27) You flip a coin twice. The first flip lands heads-up and the second flip lands tails-up.

28) A basket contains eight apples and six peaches. You randomly select one piece of fruit and eat it. Then you randomly select another piece of fruit. The first piece of fruit is an apple and the second piece is a peach.

29) A cooler contains twelve bottles of sports drink: seven lemon-lime flavored and five orange flavored. You randomly grab a bottle and give it to your friend. Then, you randomly grab a bottle for yourself. Your friend gets a lemon-lime and you get an orange.

30) You roll a fair six-sided die twice. The first roll shows a four and the second roll shows a six.

31) You flip a coin twice. The first flip lands tails-up and the second flip also lands tails-up.

32) There are ten shirts in your closet, four blue and six green. You randomly select one to wear on Monday and then a different one on Tuesday. You wear blue shirts both days.

33) A basket contains five apples and five peaches. You randomly select one piece of fruit and eat it. Then you randomly select another piece of fruit. Both pieces of fruit are apples.

34) A bag contains seven red marbles and five blue marbles. You randomly pick a marble and then return it to the bag before picking another marble. Both the first and second marbles are red.

35) A box of chocolates contains eight milk chocolates and six dark chocolates. You randomly pick a chocolate and eat it. Then you randomly pick another piece. The first piece is milk chocolate and the second piece is dark chocolate.

36) A box of chocolates contains eight milk chocolates and four dark chocolates. You randomly pick a chocolate and eat it. Then you randomly pick another piece. Both pieces are milk chocolate.

Find the probability.

37) A basket contains four apples and six peaches. You randomly select a piece of fruit and then return it to the basket. Then you randomly select another piece of fruit. Both pieces of fruit are apples.

38) There are five nickels and six dimes in your pocket. You randomly pick a coin out of your pocket and then return it to your pocket. Then you randomly pick another coin. Both times the coin is a nickel.

39) You flip a coin twice. The first flip lands tails-up and the second flip also lands tails-up.

40) You flip a coin and then roll a fair six-sided die. The coin lands heads-up and the die shows a four.

41) You flip a coin twice. The first flip lands heads-up and the second flip also lands heads-up.

42) You roll a fair six-sided die twice. The first roll shows a six and the second roll shows a five.

43) A basket contains six apples and five peaches. You randomly select a piece of fruit and then return it to the basket. Then you randomly select another piece of fruit. The first piece of fruit is an apple and the second piece is a peach.

44) You select a card from a standard shuffled deck of 52 cards. You return the card, shuffle, and then select another card. Both times the card is a diamond. (Note that 13 of the 52 cards are diamonds.)

45) A spinner has an equal chance of landing on each of its seven numbered regions. You spin twice. The first spin lands in region one and the second spin lands in region one.

46) You flip a coin twice. The first flip lands tails-up and the second flip lands heads-up.

47) There are six nickels and five dimes in your pocket. You randomly pick a coin out of your pocket and then return it to your pocket. Then you randomly pick another coin. The first coin is a nickel and the second coin is a dime.

48) There are eight nickels and six dimes in your pocket. You randomly pick a coin out of your pocket and then return it to your pocket. Then you randomly pick another coin. The first coin is a nickel and the second coin is a dime.

49) You flip a coin and then roll a fair six-sided die. The coin lands tails-up and the die shows an odd number.

50) You flip a coin and then roll a fair six-sided die. The coin lands heads-up and the die shows an even number.

51) A cooler contains eleven bottles of sports drink: four lemon-lime flavored, four orange flavored, and three fruit-punch flavored. You randomly grab a bottle. Then you return the bottle to the cooler, mix up the bottles, and randomly select another bottle. The first time, you get a lemon-lime drink. The second time, you get a fruit-punch.

52) A cooler contains twelve bottles of sports drink: three lemon-lime flavored, five orange flavored, and four fruit-punch flavored. You randomly grab a bottle. Then you return the bottle to the cooler, mix up the bottles, and randomly select another bottle. The first time, you get a lemon-lime drink. The second time, you get a fruit-punch.

53) A bag contains three red marbles and six blue marbles. Another bag contains five green marbles and three yellow marbles. You randomly pick one marble from each bag. One marble is blue and one marble is yellow.

54) A basket contains six apples and seven peaches. You randomly select a piece of fruit and then return it to the basket. Then you randomly select another piece of fruit. Both pieces of fruit are apples.

55) A cooler contains thirteen bottles of sports drink: five lemon-lime flavored, five orange flavored, and three fruit-punch flavored. You randomly grab a bottle. Then you return the bottle to the cooler, mix up the bottles, and randomly select another bottle. The first time, you get a lemon-lime drink. The second time, you get a fruit-punch.

56) A cooler contains ten bottles of sports drink: four lemon-lime flavored, three orange flavored, and three fruit-punch flavored. You randomly grab a bottle. Then you return the bottle to the cooler, mix up the bottles, and randomly select another bottle. The first time, you get a lemon-lime drink. The second time, you get a fruit-punch.

Determine if events *A* and *B* are independent.

57) $P(A) = \dfrac{11}{20}$ $P(B) = \dfrac{13}{20}$ $P(A \text{ and } B) = \dfrac{143}{400}$

58) $P(A) = \dfrac{2}{5}$ $P(B) = \dfrac{7}{20}$ $P(A \text{ and } B) = \dfrac{7}{50}$

59) $P(A) = \dfrac{7}{20}$ $P(B) = \dfrac{1}{2}$ $P(A \text{ and } B) = \dfrac{63}{400}$

60) $P(A) = \dfrac{2}{5}$ $P(B) = \dfrac{2}{5}$ $P(A \text{ and } B) = \dfrac{1}{10}$

61) $P(A) = \dfrac{11}{20}$ $P(B) = \dfrac{1}{4}$ $P(A \text{ and } B) = \dfrac{33}{400}$

62) $P(A) = \dfrac{7}{20}$ $P(B) = \dfrac{7}{10}$ $P(A \text{ and } B) = \dfrac{77}{400}$

63) $P(A) = \dfrac{9}{20}$ $P(B) = \dfrac{3}{10}$ $P(A \text{ and } B) = \dfrac{9}{80}$

64) $P(A) = \dfrac{3}{5}$ $P(B) = \dfrac{1}{4}$ $P(A \text{ and } B) = \dfrac{3}{50}$

65) $P(A) = \dfrac{7}{20}$ $P(B) = \dfrac{1}{4}$ $P(A \text{ and } B) = \dfrac{7}{200}$

66) $P(A) = \dfrac{7}{20}$ $P(B) = \dfrac{11}{20}$ $P(A \text{ and } B) = \dfrac{77}{400}$

67) $P(A) = \dfrac{7}{20}$ $P(B) = \dfrac{7}{20}$ $P(A \text{ and } B) = \dfrac{63}{400}$

68) $P(A) = \dfrac{3}{5}$ $P(B) = \dfrac{13}{20}$ $P(A \text{ and } B) = \dfrac{39}{100}$

69) $P(A) = \dfrac{3}{10}$ $P(B) = \dfrac{13}{20}$ $P(A \text{ and } B) = \dfrac{39}{200}$

70) $P(A) = \dfrac{11}{20}$ $P(B) = \dfrac{1}{5}$ $P(A \text{ and } B) = \dfrac{11}{200}$

71) $P(A) = \dfrac{13}{20}$ $P(B) = \dfrac{1}{4}$ $P(A \text{ and } B) = \dfrac{13}{200}$

72) $P(A) = \dfrac{11}{20}$ $P(B) = \dfrac{1}{2}$ $P(A \text{ and } B) = \dfrac{121}{400}$

73) $P(A) = \dfrac{1}{2}$ $P(B) = \dfrac{3}{5}$ $P(A \text{ and } B) = \dfrac{3}{10}$

74) $P(A) = \dfrac{1}{5}$ $P(B) = \dfrac{1}{5}$ $P(A \text{ and } B) = \dfrac{1}{25}$

75) $P(A) = \dfrac{1}{2}$ $P(B) = \dfrac{1}{2}$ $P(A \text{ and } B) = \dfrac{1}{4}$

76) $P(A) = \dfrac{1}{4}$ $P(B) = \dfrac{1}{2}$ $P(A \text{ and } B) = \dfrac{1}{8}$