Unit 1 Test Review

1. Monica came home from school to find a bowl of 4 apples and 4 plums on the table. She decides to have a snack. First she selects one and then puts it back. She then selects another. What is the probability both selections were apples?

2. The Scrabble tiles A, B, E, I, J, K and M are placed face down in the lid of the game and are then mixed up. Two tiles are chosen at random. Find each probability:
     a. P(selecting 2 vowels) if no replacement occurs
     b. P(selecting 2 vowels) if replacement occurs
     c. P(selecting the same letter twice) if no replacement occurs

3. Christine helps her dad do the dishes. There are 5 bowls, 5 glasses, and 6 plates which need to be washed. She accidentally knocks two items off the counter and breaks them. Find each probability:
     a. P(breaking 2 plates)
     b. P(breaking 2 bowls)
     c. P(breaking a bowl and then a glass)

4. Two dice are tossed. Find each probability:
     a. P(two 3's) 5rrrrrrrrrrrrrrrrfv
     b. P(no 3's)
     c. P(3 and 4)
     d. P(3 and any other number)

5. A jar contains 5 peanut butter cookies, 3 caramel delights, and 7 lemon cookies. If 3 cookies are selected in succession, find the probability of selecting one of each if:
     a. no cookies are replaced
     b. each cookie is replaced

6. In Jason's homeroom class, there are 12 students who have brown eyes, 5 students who are left-handed, and 3 students who have brown eyes and are left-handed. If there are a total of 27 students in Jason's homeroom class, draw a Venn diagram and find how many of them neither have brown eyes nor are left-handed?

7. A coin and a die are tossed. Calculate the probability of getting tails and an even number.

8. If the probability of receiving at least 1 piece of mail on any particular day is 32%, what is the probability of *not* receiving any mail for 4 days in a row?

9. A card is randomly selected from a standard deck of 52 cards. What is the P(ace or face card)?

10. A card is randomly selected from a standard deck of 52 cards. What is the P(heart or face card)?

11. At Kennedy Middle School, the probability that a student takes Technology and Spanish is 0.07. The probability that a student takes Technology is 0.63. What is the probability that a student takes Spanish given that the student is taking Technology?

12. In New York State, 48% of all teenagers own a skateboard and 39% of all teenagers own a skateboard and roller blades. What is the probability that a teenager owns roller blades given that the teenager owns a skateboard?

13. What is the probability of choosing the ace of clubs from a standard deck of cards given that the card you draw is a black card?

14. A pet store contains 36 light green parakeets (15 females and 21 males) and 45 sky blue parakeets (28 females and 17 males). Arrange this information in a two-way table.

	Male	Female	Total
Light Green Parakeet			
Sky Blue Parakeet			
Total			

    a. You randomly choose one of the parakeets. What is the probability that it is a female or a sky blue parakeet?

    b. What is the probability that the randomly chosen parakeet is both green and male?

    c. What is the probability that the randomly chosen parakeet is female, given it is green?

15. There are 404 students in the 10th grade. Five of these students will be selected randomly to represent your class on a 5-person bowling team. What is the probability that the team chosen will be you and your 4 best friends?

16. What are all the different ways the letters ABC can be arranged? What is the probability that if you randomly selected one of these arrangements, you would select the one that spells CAB?

17. The weather forecast for Saturday says there is a 40% chance of rain. What are the odds that it will rain on Saturday?

18. What are the odds of drawing an ace at random from a standard deck of cards?

19. From a club of 24 members, a President, Vice President, Secretary, Treasurer and Historian are to be elected. In how many ways can the offices be filled?

20. To play a particular card game, each player is dealt five cards from a standard deck of 52 cards. How many different hands are possible?

21. A student must answer 3 out of 5 essay questions on a test. In how many different ways can the student select the questions?

22. What is the probability of spelling the word DOG using the letters A, D, O, G, and P?

23. At the burger shack you can order a burger rare, medium, or well done. It can be plain or have one of these toppings: onions, relish, mayonnaise, cheese, ketchup, or tomato. How many different kinds of burgers can you order?

24. A restaurant serves five main dishes, three salads, and four desserts. How many different meals could be ordered if each person has a main dish, a salad, and a dessert?

25. A golf club manufacturer makes irons with seven different shaft lengths, three different grips, five different lies, and two different club head materials. How many different combinations are offered?

26. A gymnastics team has 6 American and 4 Romanian girls. Suppose three girls are selected at random from the team. Find the probability that they are all from America.

27. One card is selected at random. Find the probability that the card selected is
a. a face card
c. a number card less than 7

b. a spade or an odd number card
d. a red card or an ace

28. One doughnut is selected from a box of a dozen Dunkin Donuts. In the box, there are 6 glazed, 4 chocolate, and 2 blueberry doughnuts. Half of all the doughnuts have sprinkles. Find the following:
a. P (a chocolate with sprinkles)
c. P (a blueberry or a glazed)
b. P (a glazed, given that it has sprinkles)

29. Ten jellybeans are placed in a very small bag. There are 4 licorice, 3 cherry, 2 lemon and 1 grape. If three jellybeans are selected, find the probability of selecting:
a. a licorice, then a lemon, then a cherry, with replacement

b. 2 licorice, then a grape, without replacement

c. 3 cherry, without replacement

30. Two regular dice are rolled. Find the following probabilities:
a. P(sum of 4 or 8)
c. P(first die is a multiple of 3)
b. P(first die is prime, second die is odd)
d. P(a sum of at most 8)

31. Mr. Williams stops by a class of 30 students and randomly selects 5 students to take out to lunch. Find the following:
a . the odds of getting picked to go to lunch

b. the probability of not getting picked

32. The table below shows the results of a survey on favorite ice cream flavors.

	Vanilla	Chocolate	Strawberry	Total
Male	21	35	12	68
Female	17	42	23	82
Total	38	77	35	150

a. P(chocolate is the favorite flavor)

b. P(chocolate is selected, given that the person is female)

c. P(strawberry is not selected, given that the person is male)

d. P(a male is selected, given that the flavor is vanilla)

33. Lisa has 4 skirts, 8 blouses, and 2 jackets. How many 3-piece outfits can she put together?
        A) 32   B) 64   C) 14   D) 128
34. A combination lock has 20 numbers on it. How many different 3-digit lock combinations are possible if no digit can be repeated?
        A) 2280   B) 6840   C) 1140   D) 380

35. A church has 10 bells in its bell tower. Before each church service 3 bells are rung in sequence. No bell is rung more than once. How many sequences are there?

      A) 720   B) 604,800   C) 120   D) 1,209,600

36. A hamburger shop sells hamburgers with cheese, relish, lettuce, tomato, onion, mustard or ketchup. How many different hamburgers can be concocted using any 5 of the extras?

      A) 1260   B) 2520   C) 42   D) 21

37. You randomly select one card from a standard 52-card deck. Then the probability of not selecting a king P(not king) =

      A) $1 - P(king)$ B) $1 + P(king)$ C) $P(king)$ D) $- P(king)$

38. The physics department of a college has 7 male professors, 11 female professors, 16 male teaching assistants, and 8 female teaching assistants. If a person is selected at random from the group, find the probability that the selected person is a teaching assistant or a female.

      A) $\frac{4}{7}$ B) $\frac{9}{14}$ C) $\frac{5}{6}$ D) $\frac{19}{42}$

39. In a class of 50 students, 32 are Democrats, 16 are business majors, and 6 of the business majors are Democrats. If one student is randomly selected form the class, find the probability of choosing a Democrat or a business major.

      A) $\frac{1}{5}$ B) $\frac{24}{25}$ C) $\frac{21}{25}$ D) $\frac{27}{25}$

40. A fair coin is tossed two times in succession. The sample space of equally likely outcomes is (HH, HT, TH, TT). Find the probability of getting the same outcome on each toss.

      A) $\frac{1}{4}$ B) $\frac{1}{2}$ C) $\frac{3}{4}$ D) 1

41. You randomly select one card from a standard 52-card deck. Find the probability of selecting an ace or a 9.

      A) $\frac{2}{13}$ B) $\frac{13}{2}$ C) $\frac{5}{13}$ D) 10

42. A spinner is used for which it is equally probable that the pointer will land on any one of six regions. Three of the regions are colored red, two are green, and one is yellow. If the pointer is spun three times, find the probability it will land on green every time.

      A) $\frac{2}{27}$ B) $\frac{1}{9}$ C) $\frac{1}{18}$ D) $\frac{1}{27}$

43. You are dealt one card from a standard 52-card deck. Then the card is replaced in the deck, the deck is shuffled, and you draw again. Find the probability of getting a picture card the first time and a club the second time.

      A) $\frac{3}{13}$ B) $\frac{1}{13}$ C) $\frac{3}{52}$ D) $\frac{1}{4}$

44. Two dice are rolled. The numbers are multiplied. What is the probability of getting a 12?

      A) $\frac{1}{9}$ B) $\frac{1}{12}$ C) $\frac{1}{36}$ D) $\frac{1}{4}$