

**Math 2**

Name: \_\_\_\_\_

**Unit 6 Test Review**

Date: \_\_\_\_\_

1. A card is randomly selected from a standard deck of 52 cards. What is the  $P(\text{ace or face card})$ ?
  
2. A card is randomly selected from a standard deck of 52 cards. What is the  $P(\text{heart or face card})$ ?
  
3. One card is selected at random. Find the probability that the card selected is
  - a. a face card
  - b. a spade or an odd number card
  - c. a number card less than 7
  - d. a red card or an ace
  
4. 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?
  
5. Consider the sample space the letters in the alphabet. Set A are the letters in Wakefield. Set B are the letters in Wolverines. Draw a Venn Diagram showing the sample space and find the following subsets using set notation:
  - a.  $A \cap B$
  - b.  $A \cup B$
  - c.  $A^c$
  - d.  $(A \cap B)^c$
  - e.  $(A \cup B)^c$
  
6. Two regular dice are rolled. Find the following probabilities:
  - a.  $P(\text{sum is 4 or 8})$
  - b.  $P(\text{first die is prime, second die is odd})$
  - c.  $P(\text{first die is a multiple of 3})$
  - d.  $P(\text{a sum of at most 8})$
  
7. A coin and a die are tossed. Calculate the probability of getting tails and an even number.

8. 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?
9. 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:
- P(selecting 2 vowels) if no replacement occurs
  - P(selecting 2 vowels) if replacement occurs
  - P(selecting the same letter twice) if no replacement occurs
10. 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:
- P(breaking 2 plates)
  - P(breaking 2 bowls)
  - P(breaking a bowl and then a glass)
11. Two dice are tossed one after the other. Find each probability:
- P(two 3's)
  - P(no 3's)
  - P(3 on the first die and then 4 on the second die)
12. 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:
- no cookies are replaced
  - each cookie is replaced
13. 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?
14. 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 licorice, then a lemon, then a cherry, with replacement
  - 2 licorice, then a grape, without replacement
  - 3 cherry, without replacement
15. 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?

16. 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?

17. 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?

18. 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			

- You randomly choose one of the parakeets. What is the probability that it is a female or a sky blue parakeet?
- What is the probability that the randomly chosen parakeet is both green and male?
- What is the probability that the randomly chosen parakeet is female, given it is green?

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

	Vanilla	Chocolate	Strawberry	Total
Male	21	35	12	
Female	17	42	23	
Total				

- $P(\text{chocolate is the favorite flavor})$
- $P(\text{chocolate is selected, given that the person is female})$
- $P(\text{strawberry is not selected, given that the person is male})$
- $P(\text{a male is selected, given that the flavor is vanilla})$

20. A simulation was run and the experiment of drawing a card from a standard deck of cards was repeated yielding the following results: 22 clubs, 25 diamonds, 27 hearts and 26 spades. What is the experimental probability of drawing a red card?

21. You randomly select one card from a standard 52-card deck. Then the probability of not selecting a king  $P(\text{not king}) =$

- A)  $1 - P(\text{king})$                       B)  $1 + P(\text{king})$                       C)  $P(\text{king})$                       D)  $- P(\text{king})$

22. 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)  $\frac{19}{42}$

23. 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 from 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)  $\frac{27}{25}$

24. 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

25. 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

26. 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)  $\frac{1}{27}$

27. 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)  $\frac{1}{4}$

28. 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)  $\frac{1}{4}$