

Lesson 10.2 Worksheet

Name: _____

Find the number of combinations.

1.) ${}_{10}C_3$

2.) ${}_8C_2$

3.) ${}_{11}C_{11}$

4.) ${}_7C_5$

Find the number of possible 5-card hands that contain the cards specified. The cards are taken from a standard 52-card deck.

5.) 5 hearts or 5 diamonds

6.) 4 spades and 1 card that is not a spade

7.) 3 face cards (kings, queens, or jacks) and 2 cards that are not face cards

8.) 2 aces and 3 cards that are not aces

9.) At most 1 diamond

10.) At least 1 king

11.) At most 1 queen

Use the binomial theorem to write the binomial expansion.

12.) $(x - 4)^5$

13.) $(x + 3b)^4$

14.) $(3x - y)^6$

15.) $(2x^4 + 5)^5$

- 16.) You are buying a bouquet of flowers. The florist has 18 types of flowers that you can use to make the bouquet. You want to use exactly 3 types of flowers. How many different combinations of flower types can you use in your bouquet?
- 17.) An arcade has 20 different arcade games. You want to play at least 14 of them. How many different combinations of arcade games can you play?
- 18.) You have a plastic sheet that holds 9 trading cards. You want to fill the sheet with football cards consisting of 4 quarterbacks, 3 running backs, and 2 wide receivers. In your collection of cards, you have 10 quarterbacks, 7 running backs, and 8 wide receivers. In how many different ways can you fill your plastic sheet?

Decide whether the problem requires *combinations* or *permutatuions* to find the answer. Then solve the problem.

- 19.) Your school newspaper has an editor-in-chief and an assistant editor-in-chief. The staff of the newspaper has 12 students. In how many ways can students be chosen for these two positions?
- 20.) Five representatives from a senior class of 280 students are to be chose for the student council. In how many wasy can students be chosen to represent the senior class?