Name:_____

Count Me If You Can!

Solve use the correct formulas.

1. $\dfrac{12!}{6!}$ 2. $_8P_1$ 3. $_9P_6$ 4. $_4C_3$ 5. $_7C_7$

6. Use the definition of permutation to show why 0! should equal 1.

Tell whether it is a permutation or a combination. Do not solve.

7. How many different teams of 11 players can be chosen from a soccer team of 16?

8. Suppose you find seven equally useful articles related to the topic of your research paper. In how many ways can you choose five articles to read?
_____

9. A salad bar offers eight choices of toppings for a salad. In how many ways can you choose four toppings?

Solve.

10. Fifteen students ask to visit a college admissions counselor. Each scheduled visit includes on student. In how many ways can ten time slots be assigned?

11. There are eight swimmers in a competition where the top three swimmers advance. In how many ways can three swimmers advance?

12. In how many different ways can you arrange nine CDs one after another on a shelf?

13. An old web-site requires a four-character password consisting of three numbers and one letter. A new website requires a six-character password consisting of three numbers and three letters. How many more passwords can be made for the new website?

14. A consumer magazine rates televisions by identifying two levels of price, five levels of repair frequency, three levels of features, and two levels of picture quality. How many different ratings are possible?

1. How many ways can you arrange the letters of the word FACTOR?

2. How many ways can you choose two jellybeans from a bag of 15?

3. How many ways can five different textbooks be arranged on a shelf?

4. How many groups of 3 toys can a child choose to take on a vacation from a toy box containing 11 toys?

5. How many different sets of 6 questions for a test can be chosen from a file containing 22 questions?

6. How many ways can Laura color a map with 4 adjacent regions if she has 15 colored pencils?

7. How many ways can a teacher select 5 students form a class of 23 students to create a bulletin board display?

8) A test is administered with 15 questions. Students are allowed to answer any ten. How many choices of ten questions are there?
A.) 150   B.) 250   C.) 3003   D.) 3000

9.) In a contest in which there are 8 participants, in how many ways can 5 distinct prizes be
awarded?
A.) 112   B.) 6720   C.) 336   D.) 672

10.) From a group of 8 people, 5 will each win $1,000. How many different winning groups are
possible?
A.) 56   B.) 6720   C.) 168   D.) 336

11) A club elects a president, vice-president, and secretary-treasurer. How many sets of officers are possible if there are 15 members and any member can be elected to each position? No person can hold more than one position.
A.) 2730   B.) 32,760   C.) 910   D.) 1365

12.) A church has 7 bells in its bell tower. Before each church service 5 bells are rung in sequence. No bell is rung more than once. How many possible sequences are there?
A.) 2520   B.) 42   C.) 84   D.) 21

13.) How many arrangements can be made using 2 letters of the word HYPERBOLAS if no letter is to be used more than once?
A.) 1,814,400   B.) 3,628,800
C.) 45   D.) 90

14.) A work softball team has 15 players on its roster. There are 9 distinct positions in which

these players can be placed. How many lineups can be fielded?
A.) 1,505,667,870   B.) 1,635,890
C.) 1,816,214,400   D.) 214,400

15.) From a group of 8 people, 5 will each win $1,000. How many different winning groups are
possible?
A.) 56   B.) 6720   C.) 168   D.) 336

16.) Of a classroom filled with 20 students, 2 will be selected to stay after school and correct
homework for extra credit. How many ways are possible?
A.) 190   B.) 210   C.) 63   D.) 40

17.) To win the lottery, one must correctly select 6 numbers from a collection of 50 numbers (one through 50). The order in which the selection is made does not matter. How many different selections are possible?
A.) 250   B.) 15,890,700
C.) 300   D.) 13,983,816