

Counting Problems

1. How many five digit numbers can be obtained given that the ten thousands place can not be zero?
2. Ten cars are in a race. How many ways can we have first, second, and third place?
3. How many ways can a True-False test be answered if there are 4 questions? 6 questions?, n questions?
4. How many distinguishable words are in the word "grammar"?
5. In how many ways can six items be chosen from nine things?
6. License plates consist of two letters and five digits. How many different license plates can be made?
7. A shipment is received containing ten items, two of which are defective. Determine how many ways two items can be chosen so that a defective item is not chosen? One defective item is selected?
8. A man has a nickel, dime, quarter, and a half dollar. How many ways can the waitress be tipped if he gives her two coins? At least two coins?
9. There are five rotten apples in a crate of 25 apples: How many samples of three apples can be chosen? How many samples of three could be chosen if all three are rotten? If one is rotten and two are good?
10. How many two card hands can be dealt from a deck of 52 cards?
11. A city council is composed of 5 liberals and 4 conservatives. A delegation of three is to be selected to attend a convention. How many delegations are possible? How many delegations could have all liberals? How many could have 2 liberals and one conservative?
12. How many ways can a basketball team of 5 players be selected from a squad of 12 players?
13. A man's wardrobe consists of 5 sport coats, 3 dress slacks, and 2 pairs of shoes. Assuming they all match, in how many ways can he select an outfit?
14. The school board consists of seven members, if the first person selected is the president, the second is the vice president and the third is the treasurer, how many ways can the officers of the board be chosen?
15. Ten people reached the finals of the contest, if the first one of the finalists chosen receives, \$500, the second person receives \$200, and the third person selected receives \$100, how many ways can the prize money be distributed?