Counting Calamari

1. Mindy’s Restaurant offers an all-you-can-eat pasta special. This offer involves four types of pasta (Fettuccini, Macaroni, Penne, Spaghetti) and three types of sauces (Alfredo, Marinara, Pesto). How many different pasta specials can be ordered? Provide a convincing justification for your answer.

2. Mindy’s Restaurant offers a dinner special as well. This offer involves two appetizers (Soup del giorno or Salad), three entrées (Lasagna, Ravioli, Tortellini), and two desserts (Biscotti, Tiramisu). How many different dinner specials can be ordered? Provide a convincing justification for your answer.

3. Based on your answers above, describe how to count the number of selections when given a sequence of choices.
4. Up until the 1990s, telephone area codes (a three-digit number) required either a zero or one as the second digit for equipment recognition. For example, northern Colorado originally used 303 as its area code, but was assigned 970 in 1995. An additional requirement still in effect is that the first digit cannot be a zero or one. Determine the number of possible telephone area codes before and after the second-digit requirement.

5. Typical license plates in Colorado include three numerical digits (0–9) followed by three letters (e.g., 000·AAA, 509·DIX, 999·ZZZ). Determine the number of typical license plates that Colorado can assign.

6. The remote control for a garage door opener must match a nine-pin configuration on the opener itself. Each pin must be moved into an on or off position. Determine the number of options for the remote control for a garage door opener.

7. The lists in a TI-83 calculator may be between one and five characters in length and must begin with a letter. Determine the number of list names available for the calculator.