Finite Math Section 6_3
Solutions and Hints

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for the book:
Finite Mathematics, 7th Edition
by S. T. Tan.

DO NOT PRINT THIS OUT AND TURN IT IN !!!!!!!!
This is designed to assist you in the event you get stuck.
If you do not do the work you will NOT pass the tests.

Section 6.3:

Problem 6:
Four commuter trains and three express buses depart from city A to city B in the morning. Three commuter trains and three express buses operate on the return trip in the evening. In how many ways can a commuter from city A to city B complete a daily round trip via bus and/or train?

To solve this ask these questions:
In the morning how many ways are there to from A to B?
Answer → 4 + 3 = 7

In the evening how many ways are there to return from B to A?
Answer → 3 + 3 = 6

So you have 7 different ways to go in the morning and 6 different ways to go in the evening. Thus the answer is simply 7 * 6 = **42 different ways**

Problem 12:
Computers manufactured by a certain company have a serial number consisting of a letter of the alphabet followed by a four-digit number. If all the serial numbers of this type have been used, how many computers have already been manufactured?

So the serial number is: [letter] [digit] [digit] [digit] [digit]

There are 26 possible letters to use.
There are 10 possible digits to use.

So we see the total number of possible serial numbers is:
26 * 10 * 10 * 10 * 10 = 260000
So,
260,000 computers have already been made.

Problem 17:
To gain access to his account a customer using an automatic teller machine (ATM) must enter a four digit code. If repetition of the same four digits is not allowed (for example 5555), how many possible combinations are there?

So the pin number is: [digit] [digit] [digit] [digit]

If the repetition of the same four digits was allowed there would be:
10 * 10 * 10 * 10 = 10000 possible combinations.

So how many ways are there to repeat the same four digits?
answer → 10, you can count them:
0000
1111
2222
3333
4444
5555
6666
7777
8888
9999

So we simply subtract 10 from 10000 and get
9990 possible combinations.

Problem 22:

A warranty identification number for a certain product consists of a letter of the alphabet followed by a five-digit number. How many possible id numbers are there if the first digit of the five-digit number must be nonzero?

So the id number is: [letter] [non-zero digit] [digit] [digit] [digit] [digit]

So the total possibilities are: 26 * 9 * 10 * 10 * 10 * 10 = 2340000.

So there are 2,340,000 possible identification numbers.