

Math 213, Section B1, Quiz 3 (Solutions); Friday, February 1, 2008

1.

There are 100 computers in a lab, as well as a printer and a scanner. There are 35 computers that are connected to the printer, 27 computers that are connected to the scanner and 6 computers that are connected to both the printer and the scanner. How many computers are attached to neither the printer nor the scanner?

Solution.

By the Inclusion-Exclusion formula, the number of computers that are connected to the printer or the scanner is $35+27-6 = 56$. Therefore the number of computers that are attached to neither the printer nor the scanner is $100 - 56 = 44$.

2.

Each building on campus is given a code which consists of a letter followed by one or two digits. How many different building codes are possible?

Solution.

The number of building codes that consist of a letter followed by a digit is, by the product rule, equal to $26 \cdot 10 = 260$.

The number of building codes that consist of a letter followed by two digits is, by the product rule, equal to $26 \cdot 10 \cdot 10 = 2600$.

Therefore, by the sum rule, the total number of possible building codes is

$$26 \cdot 10 + 26 \cdot 10 \cdot 10 = 260 + 2600 = 2860.$$