

Math 213, Section B1, Quiz 8 (SOLUTIONS); Friday, March 30, 2007

1.

How many ways are there to distribute 5 different toys among 3 different children if every child must get at least one toy?

Solution.

We have to count the number of onto functions from a 5-element set to a 3-element set. This number is:

$$3^5 - C(3, 1) \cdot 2^5 + C(3, 2) \cdot 1^5 = 243 - 3 \cdot 32 + 3 = 243 - 96 + 3 = 150.$$