Worksheet on Elementary Enumeration

September 9, 2015

1. How many different types of burritos can you make, if you must choose meat/veggie, then you can choose black/pinto for the beans, and finally you can pick guacamole/sourcream/none for the topping?

2. How many ways can you write down a 4-digit number (not fewer than 4 digits) without using the digit 7?

3. How many different ways could we pick a triathlon team from our class of 20 students? That means picking one cyclist, one swimmer and one runner.

4. I wish to put seven different cats into two different bags. How many ways could I do it (all cats are in one or the other bag)?

5. How many different ways could we form a committee from our class of 20 students? A committee is any subset of the students in our class, except the empty set (in other words, a committee has at least one person on it). We don't consider ordering in committees, so (Ted,Joe,Mike) is the same as (Mike,Joe,Ted).

6. How many different ways could you form a chaired committee from our class of 20 students? A chaired committee has at least 1 person on it, and one of the people on it is designated the chair.

7. How many ways can you arrange seven different books on a bookshelf?

8. How many ways can you arrange three of the seven different books on the bookshelf?

9. How many ways can you arrange k of n different books on a bookshelf?

10. How many ways can you arrange 13 people (7 girls and 6 boys) in a row, with the requirement that boys aren't next to each other and girls aren't next to each other?

11. How many ways can n women and n men be paired off into heterosexual relationships?

12. How many ways can n women and n men be paired off? (Here, same-sex pairs are allowed.)

13. How many ways can you choose a committee of exactly 4 people from this class of 20 people?

14. How many ways can you choose n things from a collection of m things?