

Worksheet 2.1

Counting with the Multiplication Rule (and Sum Rule)

1) Billy wants to buy an American or German car that has either satellite radio or a CD player and either chrome wheels, a moonroof or an automatic transmission. How many options does Billy have?

2) A factory has a machine that will make widgets, wodgets, blidgets and blodgets at three speeds: fast, light speed and ridiculous speed. How many calibrations of this machine are possible?

3) Twelve elves shall ring bells, dig wells or dance pell-mell. How many different ways can the elves raise hell?

4) Count the number of alphanumeric license plates with 6 characters.

5) Count the number of 6-character license plates with exactly 5 letters.

6) How many (7-digit) phone numbers use only even numbers? What if a "legal" number cannot have 0 as its first digit?

7) How many (7-digit) phone numbers differ from your own in exactly one digit?

8) How many 2 digit numbers have their second digit divisible by their first?