Worksheet 5

1. Of 500 students, 230 of them are Industrial Engineering majors, 170 of them are Computer Science majors, and 6 of them of them are both Computer Science and Industrial Engineering majors.

  (a) How many students are Computer majors and not Industrial Engineering majors?

  (b) How many students are Industrial Engineering majors and not Computer Science majors?

  (c) How many students are neither Industrial Engineering nor Computer Science majors?

  (d) The school decides to add a Math program. With fervor, 10 of the students that are neither computer science nor industrial engineering majors become Math majors, 2 Industrial Engineering students become Math majors (and are still Industrial Engineering majors), 5 of the Computer Science majors become Math majors (and remain Computer Science majors), and one of the Computer Science and Industrial Engineering dual majors decides that he would also like to be a Math major.

  How many Math majors are there?

  (e) How many non-Math majors are there?

  (f) How many students have two majors?

2. In music, a key is a set of notes. If the set of all notes (in conventional, western music) is {A,A#,B,C,C#,D,D#,E,F,F#,G,G#}, how many keys have seven notes?

3. How many five-card poker hands have a four-of-a-kind?

4. A sports team has 8 members, and each member needs a uniform. Each player has a unique number from 1 to 8 on their uniform, and the team has to choose a color for their uniform. If the uniforms can either be black, purple, or blue, how many different ways can the team make their uniforms?