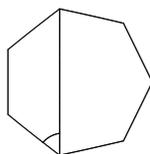


FINAL ROUND, 6 MARCH 2014

- 1.** Venla, Veijo and Viljo each have some apples. Together they have 101 apples. Venla has 34 apples more than Veijo has, and Veijo has 23 apples more than Viljo has. Determine how many apples each of them has.
- 2.** There are four pieces of paper, and each of them has a positive integer written on it. (Different pieces of paper might have the same number written on them.) Each of the numbers is at least 2 and at most 10. The product of the numbers is 300. Which numbers are possible? [There are many ways of writing numbers on the papers in this way. Here one must find all of them, but the order of the numbers need not be considered.]
- 3.** In the following picture, there is a regular 7-gon, and two of its vertices have been joined by a straight line.



How large is the angle marked in the picture?

- 4.** There are 4 members in a secret society. The society has a safe which has 6 locks. Some copies are made of the keys to the locks and distributed to the members. The rules of the society dictate that keys must be handed to the members so that whenever there are three members of the society present, the safe can be opened, and whenever there are at most two members present, the safe can not be opened. How should the society distribute keys among its members?
- 5.** Which of the following numbers are squares of integers?

12345, 43125, 54321, 21543.