5. (10). Prove that from any three integers one can choose 2 such that their sum is divisible by 2.

6. (10). There are 40 students in a class. Is there a month of the year such that 4 students have their birthdays during this month?

7. (15). Show that the difference $9^{1972} - 7^{1972}$ is divisible by 10.

8. (15) What is the last digit of a) $6^{1971}$ b) $9^{1971}$ c) $3^{1971}$ d) $2^{1971}$?