U.C. MATH BOWL 2017
LEVEL III — Session 1

Instructions: Write your answers in the blue book provided. Remember that even correct answers without explanation may not receive much credit and that partially correct answers that show careful thinking and are well explained may receive many points.

Have Fun!

1. At William Diamond High School, 75% of all athletes are honor students, but, only 15% of all honor students are athletes. If 18 athletes are not honor students, how many honor students are not athletes?

2. If it were two hours later, it would be half as long until midnight as it would be if it were one hour later. What time is it?

3. Exactly 11 toothpicks can be arranged to form the following incorrect statement involving Roman numerals.

$$VI + II = V.$$

Can you move just one toothpick to make a correct statement? Can you find more than one way to do this?

4. At a party, the guests discover that among any group of five of them, at least two of them share a birthday. What is the greatest possible number of distinct birthdays among the all guests? Based only on this information, how big of a group would you need to be sure that at least three of them share a birthday?

5. In the football game Saturday the home team only scored points by touchdowns (worth 7 points) and field goals (worth 3 points). What is the largest number of points that the team could not have scored?