

## Lehigh University High School Math Contest

March 3, 2012

1. Do not open this exam until you are told to do so.
2. Print your name clearly on your answer sheet. On the “Grade” line, write your grade in school (6, 7, 8, 9, 10, 11, or 12), **not** the grade level of your team. Phone number and e-mail addresses are requested primarily to contact top finishers about being on the Lehigh Valley team in the American Regions Math League. If you would not consider being on this team, you may leave those blank. **Please write these legibly.**
3. Print clearly and legibly on the answer sheet your answer to each question. You should not write decimal approximations to numbers such as  $\pi$  and  $\sqrt{2}$ . Leave expressions such as  $\pi$  and  $\sqrt{2}$  in your answer. You must simplify your answers as much as possible. For example,  $6/4$  should be simplified to  $3/2$ , and square roots of integers should not appear in the denominator. Frequently, several equivalent expressions will be considered correct. For example,  $3/2$ ,  $1\frac{1}{2}$ , and  $1.5$  could each be correct.
4. Each correct answer is worth 1 point. A blank and an incorrect answer are each worth 0 points. An answer which is correct but not adequately simplified may receive half a point.
5. No books, notes, calculators, or electronic devices, such as cell phones, may be used. Turn off your cell phones.
6. If  $x \geq 0$ , then  $\sqrt{x}$  denotes the nonnegative square root of  $x$ . Also,  $AB$  denotes either a line segment or the length of a line segment. The vertices of a polygon, such as  $ABCD$ , are indicated in consecutive order as you move around the polygon.
7. If a problem asks you to “list all,” and you think there are none, write “None.”
8. You may keep your questions and scratch work. You might want to keep a record of your responses for comparison with the solutions, which will be distributed at 1:15 in Packard 101, 416, and 466.
9. The people with the ten highest scores out of all people taking the test, without regard for grade level, will receive cash awards of \$300, \$250, \$200, \$150, \$100, \$90, \$80, \$70, \$60, and \$50, respectively, compliments of Paul and Aarati Martino. In case of ties, the person with fewer incorrect answers will be judged the higher finisher. If people are still tied, cash awards will be split. For example, if two tie for first and second and have the same number of incorrect answers, they each receive \$275.
10. A plaque will be awarded to the top individual and team-of-four in each grade level (8-12 for individuals, 9-12 for teams). In case of a tie, after application of the tie-breaking criterion described above, duplicate awards will be presented. There will also be a plaque for the top team-of-four overall. No school can win more than one team award. If a school is eligible for more than one team prize, their highest-scoring team wins a plaque and their remaining teams are removed from consideration for other plaques.