2016 Northwest High School Math Championship
Algebra Test
Grades 9-10

1. The sum of five consecutive integers is 340. What is the product of the largest two integers?

2. Damon wants to purchase a tablet from the store. A week from now the tablet will go on sale for 10% off of the current price. If he waits for the tablet to go on sale, he will pay $971.62, which includes an 8.5% sales tax. What is the current price of the tablet? Round your answer to the nearest dollar.

3. Tickets to the Seahawks game cost either $50 for general admission or $75 for box seats. Josh's company purchased 25 tickets and the total came out to be $1425. How many dollars did Josh's company spend on general admission tickets?

4. Two armies are advancing towards each other, each one at 1 mph. A messenger leaves the first army when the two armies are 10 miles apart and runs towards the second army at 9 mph. Upon reaching the second army, the messenger immediately turns around and runs towards the first army at 9 mph. How many miles apart are the two armies when the messenger returns to the first army?

5. A section of a baseball stadium has 30 seats in the first row, 33 seats in the second row, 36 seats in the third row, and so on, continuing the pattern. If the section has 26 rows, how many seats are in the section?

6. Let $(a * b) = \frac{a}{b}$. Given that $[48 * (36 * 6)] * [64 - (24 * 6) + 12] = 45 * x$, what is the value of x? Express your answer to the nearest tenth.

7. A number system is based on 26 and uses the English alphabet as its "digits" – that is, $a = 0$, $b = 1$, $c = 2$, and so on. Given this information, evaluate the following expression:

$$\frac{\left(\frac{z+c}{j}\right)^{12}}{(p-g)^4} \cdot (d+e)^{-3}.$$

8. The following statements were made on the same day:
   - It was Monday yesterday.
   - Today is Thursday.
   - The day after tomorrow will be Friday.
   - Tomorrow will be Saturday.
   - The day before yesterday was Tuesday.

   Given that the number of correct statements above uniquely determines the day of the week the statements were made, on what day of the week were the statements made?

9. Find two numbers whose sum is 207 such that one is 22 times as large as the other.

10. Find the ordered triple (a, b, c) of positive integers that satisfies both

$$(a + b)(a + c) = 77 \quad \text{and} \quad (a + b)(b + c) = 42.$$