Time limit: 60 minutes.
Instructions: This test contains 10 short answer questions. All answers must be expressed in simplest form unless specified otherwise. Only answers written inside the boxes on the answer sheet will be considered for grading.
No calculators.

1. In a Super Smash Brothers tournament, $\frac{1}{2}$ of the contestants play as Fox, $\frac{1}{3}$ of the contestants play as Falco, and $\frac{1}{6}$ of the contestants play as Peach. Given that there were 40 more people who played either Fox or Falco than who played Peach, how many contestants attended the tournament?

2. Compute the number of ways 6 girls and 5 boys can line up if all 11 people are distinguishable and no two girls stand next to each other.

3. The line $y = x + 2015$ intersects the parabola $y = x^2$ at two points, (a, b) and (c, d). Compute $a + c$.

4. Initially 2 miles apart, two cars are driving north on a straight freeway. The southern car is driving 80 mph and the northern car has a speed of 50 mph. A very fast bird, initially sitting on the front car flies off directly at the other car at a speed of 90 mph! When the bird approaches a car it instantly turns around and flies the other direction. What is the total distance that the bird flies, in miles, before getting smashed between the cars?

5. A certain high school has exactly 1000 lockers, numbered from 1 to 1000, all initially closed. Mark and Matt decide to practice lockpicking after school one day. Mark first opens every locker whose number has exactly 3 factors, starting with locker 4. Matt then opens every locker whose number is a power of 2, starting with locker 1. If Matt encounters a locker that Mark has already opened, he closes it and reopens it for extra practice. Compute the number of lockers that will be open when both Mark and Matt finish.

6. An integer n is *almost square* if there exists a perfect square k^2 such that $|n - k^2| = 1$ and k is a positive integer. How many positive integers less than or equal to 2015 are almost square?

7. In a right triangle, dropping an altitude to the hypotenuse divides the hypotenuse into two segments of length 2 and 3 respectively. What is the area of the triangle?

8. Let $f(x) = ax^2 + bx + c$ where $a \neq 0$. Find d where $0 < d < 1$ such that $f(0) = 2014$, $f(d^2) = 2015$, $f(d) = 2016$, and the sum of the roots of f equals 0.

9. There are four seats arranged in a circle and a person is sitting on one of the seats. He rolls a die 6 times. For each roll of the die, if it lands on 4, he moves one seat clockwise. Otherwise, he moves k seats counterclockwise where k is the number he rolled. Compute the probability that he ends up on the same seat he originally started on.

10. How many ways are there to tile a 4×14 grid using the following tiles?