**Choose the letter of the correct answer. For all problems, E. NOTA means none of these answers.**

1. Alberic is one of the best swimmers on his team. He once swam 96 12|6 - 8| miles in a day. How many miles did he swim?

**A. 1 B. 4 C. 16 D. 64 E. NOTA**

1. Alberic can swim at a whopping 2 meters per second (m/s). If he never gets tired and never slows down, how many meters can he swim in 5 minutes?

**A. 10 m B. 100 m C. 300 m D. 600 m E. NOTA**

1. Jaewon is facing his rival Justin at a diving competition. Each of them dives once and is rated by 3 judges. Their final score is determined by the mean of each of the judge’s individual scores. Justin just received a mean score of 7 and Jaewon’s first two individual judge's scores are 4 and 9. What is the minimum score Jaewon must receive from his third judge to beat Justin? Assume judges must give scores that are whole numbers.

**A. 6 B. 7 C. 8 D. 9 E. NOTA**

1. Divers often follow a parabolic path in their dives. A diver jumps from a diving board and follows the path modeled by the function y = 9 - x2 for x 0 with the x axis representing the distance, in feet, from the board and the y axis representing the diver’s height, in feet, above the pool. How high above the water is the diver when they are 2 feet away from the board?

**A. 1 ft B. 3 ft C. 5 ft D. 9 ft E. NOTA**

1. Vivian decides to work on a math problem before Olympic event to calm her nerves. She has been trying to solve the equation [12 - 13(2)]x – 13 = 8x. What is the solution to Vivian's equation?

**A. - B. - C. D. E. NOTA**

1. Vivian realizes she is late for her race and rushes to the pool. In her hurry she knocks over the letters in the word SWIM. She quickly puts them back but in a random order. How many different arrangements can she make by rearranging the letters?

**A. 4 B. 23 C. 24 D. 48 E. NOTA**

1. Vivian finally makes it to her event, the 100m freestyle. She had been practicing and has discovered her times create an arithmetic sequence. Her previous times have been 20, 28, 36, 44 seconds if this pattern continues and her next race is at the Olympics, what will be Vivian’s time be? All times are in seconds.

**A. 51 B. 52 C. 53 D. 54 E. NOTA**

1. Jason wants to make a special pool for the upcoming Olympic Games. He decides to make a pool in the shape of a cube. Since it is an Olympic size pool, it is 50 meters long on an edge. What is the volume of water that can be placed in the pool?

**A. 100 cubic meters B. 200 cubic meters C. 2500 cubic meters**

**D. 125,000 cubic meters E. NOTA**

1. Unfortunately, Jason's special pool is located outside. Kevin, being the thoughtful person he is, decides to cover the pool with a rectangular tarp. If the perimeter of the tarp is 400 ft, what is the maximum area Kevin's tarp can cover?

**A. 400 ft2 B. 10000 ft2 C. 16000 ft2 D. 36000 ft2 E. NOTA**

1. Jason, having fixed his pool problems, is now on his way to buy a refreshing soda. The cylindrical cups come in sizes 1, 2, and 3. Cup 1 has a radius of 3 inches and a height of 4 inches, Cup 2 has a radius of 1 inch and a height of 16 inches, and Cup 3 has a radius of 2 inches and a height of 8 inches. They all cost the same amount of money. Which cup gives Jason the most volume? The volume of a cone is V= where r = the radius and h = the height of the cup.

**A. Cup 1 B. Cup 2 C. Cup 3 D. All cups have the same volume E. NOTA**

1. Here, Jason’s story comes to an end. Arriving home after work, Jason sees a lock on his front door with a number password. Jason has two choices: dive to the bottom of his deep, deep pool to find the number or do some tricky, tricky math. Unfortunately, Jason cannot swim, so he needs your help! What is the greatest prime factor of 156?

**A. 1 B. 3 C. 7 D. 11 E. NOTA**

1. Chamara is a world-class swimmer. Eager to test his skill, he challenges Alberic to a race. Both will swim 200 feet to the finish line. Alberic's distance traveled follows the equation D = 8t , while Chamara's distance traveled follows the equation D = 6t + 5. Who reaches the finish line first and at what time? NOTE: D is distance traveled in feet, t is time elapsed in seconds.

**A. Alberic, 25 seconds B. Alberic, 50 seconds C. Chamara, 25 seconds**

**D. Chamara, 50 seconds E. NOTA**

1. Not only are Alberic and Chamara amazing swimmers, but they also happen to be extraordinary divers as well. Shortly after their swimming race, Alberic challenges Chamara to a diving competition. They decide that the winner will be the one who enters the water furthest from the diving board. If Alberic’s dive is modeled by the function

A(x)= -+3 and Chamara’s dive is modeled by the function C(x)= -+3, where x is the distance from the board and y is the diver's height above the water, who won the competition and what was the winning distance? All units are arbitrary

**A. Alberic, 27 units B. Alberic, 54 units C. Chamara, 27 units**

**D. Chamara, 54 units E. NOTA**

1. Cayle is filling cups of coffee for sleepy athletes. One of the athletes asks for 8/15 of a cup, but the machine only takes percentages in increments of 5%. Which setting should Cayle pick to get the closest to what the athlete wanted?

**A. 40% B. 45% C. 50% D. 55% E. NOTA**

1. Jack is new to the Chiles High School Olympic swimming team and is worried about his tryouts. He spends of his time worrying about the tryouts and of his time practicing for his tryouts. The rest of his time is spent making sushi for his fellow teammates. What fraction of his time is spent making sushi?

**A. B. C. D. E. NOTA**

1. Nilay and Justin are competing in a "Super Diving Bros" competition. As with all competitions the two face off in, Justin loses. Nilay, feeling sorry for Justin, states that if Justin can answer his question correctly, he will become the winner. The question: If , what is ? Help Justin out by answering Nilay's problem?

**A.  B.  C.  D.  E. NOTA**

1. George, the swimming pool janitor, cleans the locker rooms. He notices that several athletes have left their somewhat-filled energy drinks on the locker room floor. Alberic's bottle is 13/15 full, Chamara's bottle is 4/5 full, Justin's bottle is 17/30 full, and Jaewon's bottle is 35/60 full. Who's bottle is the closest to being empty of energy drink?

**A. Alberic B. Chamara C. Jaewon D. Justin E. NOTA**

1. As the swimming pool janitor, George has many responsibilities. One of these is mixing chlorine into the water to keep it clean. Currently, George is experimenting with small batches before he adds the chlorine to the larger pool. If his smaller batch has 1 gallon of chlorine for every 50 gallons of water, how many gallons of chlorine will he need for the Olympic swimming pool that holds approximately 660,000 gallons of water? Assume the same ratio of chlorine to water is needed.

**A. 13,200 gal B. 13,300 gal C. 13,400 gal**

**D. 13,500 gal E. NOTA**

1. Whoops! George the janitor was messing around with chlorine and water and made a mixture that was 80% chlorine! If there are 175 gallons of solution, how many gallons of chlorine are in the solution?

**A. 120 B. 130 C. 140 D. 150 E. NOTA**

1. George the janitor has secretly been practicing hard and has made it into the 2016 Olympics! He is going to compete in various swimming events and believes he has a straight path to the gold. If this path can be modeled by the function f(x) = 6x + 7, which of the following points lies on George’s path?

**A. (-5, -23) B. (-2, -4) C. (2, 12) D. (5, 36) E. NOTA**

1. Although we said that Jason's story had ended, his daily life has not. Jason, being a forgetful person, has had a bout of amnesia and forgot the age of his brother and sister. However, he has several clues to help him out. Jason is 18, and he knows that in two years from now he will be double the age of his sister. He also knows that his brother is, as of now, 4 years older than his sister's current age plus half of Jason's age. How old is Jason's brother?

**A. 8 B. 17 C. 19 D. 21 E. NOTA**

1. A large thunderstorm is heading towards the swimming pool! In a rush, Cayle does a head count (and a leg count) to make sure everyone gets out of the pool. As weird as it sounds, the occupants in the pool consist of only chickens and cows! Cayle counts a total of 62 legs and 20 heads. How many chickens were in the pool?

**NOTE:** Chickens and cows both have 1 head; chickens have two legs and cows have four legs (no mutant cows or chickens).

**A. 7 B. 9 C. 11 D. 13 E. NOTA**

1. Have you noticed that the last three questions all started with the letter A? Alberic, his car having run out of gas, ponders the colors of the trees around him while he waits for AAA to provide roadside assistance. He notices that 31% of the trees are green, 5% are blue, 17% are purple, 9% are brown, and the rest are pink. He also notices that there are a total of 300 trees. How many pink trees are there?

**A. 38 B. 62 C. 114 D. 186 E. NOTA**

1. As Justin walks to his lane in the swimming pool, he starts counting lane numbers. If the lanes start with lane number 1 and increase by increments of 1 to lane 30, what is the sum of all the lane numbers?

**A. 31 B. 435 C. 465 D. 495 E. NOTA**

1. Chamara's lost the dimensions to the swimming pool! However, he remembers that the rectangular pool has a length one more than three times the width, width two times the height, and a height of 10 meters. What is the volume of the pool? All answers are in m3.

**A. 6000 B. 6200 C. 12000 D. 12200 E. NOTA**

1. Kevin and Cayle are tied for first place in the 10 meter platform dive. The judges decide to break the tie with a math problem. The question is: how many prime numbers are between 1 and 100 (inclusive)? Can you solve the problem?

**A. 23 B. 24 C.25 D. 26 E. NOTA**

1. Rohit is designing an Olympic size pool and needs some help. He has four equations for the lanes of the pool, but the lanes must be parallel. Pick out the two equations that represent parallel lines.

I. 2x - 6y = 12

II. 5x + 15y = -15

III. –x + 3y = -18

IV. 9x + 24y = 40

**A. I, III B. I, IV C. II, III D. III, IV E. NOTA**

1. On his way home after a long day of swimming, Jack decides to come up with plans for a new swimming pool (Olympic swimming needs several pools.) After some thought he decides to make a triangular pool with angles of 36o, 72o, and xo. What is x in degrees?

**A. 36 B. 72 C. 180 D. 252 E. NOTA**

1. Just because the Olympics aren't held year round doesn't mean they're not important! Rohit is planning a meeting for the next Olympics at noon on February 16, 2017. If it will take him 2.25 days to draw out the plan, 7 days to get all of the people necessary, 12 days to set up the building, and 3 days to finalize plans, on what day should he start in order to finish at noon on the meeting date?

**NOTE**: all answer choices are dates in 2017; Rohit is an extremely energetic man and can work all day without sleep.

**A. January 21 B. January 22 C. January 23 D. January 24**

**E. NOTA**

1. The Olympic swimming events are coming to an end! For the finale Kevin must find the total number of people attending the awards ceremony, staff included. If there are a total of 2163 people attending, what is a prime factor of this number?

**A. 1 B. 2 C. 5 D. 113 E. NOTA**