2017 SSSS Fermi Questions Test
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Student 1:_____

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Welcome to Fermi Questions! In this test will be 27 questions testing your estimation and dimension analysis skills. The goal is to get as close to the power of 10 of the answer as possible with adjustments for rounding. So for example, if the answer of the quantity desired is 9.57 * 10^17, the answer would be 18 because 9.57E17 rounds up to 1E18 with reference to the power of 10. The answers will be graded based on how close you get to that answer adjusting for being higher or lower than the answer. For instance, if your answer that you give for the previous answer was 17, you would earn 5 points, 18 or 16 3 points, and 19 or 15 1 point. Any other answer would get 0 points. The totals for all 27 questions will be added up and your score will be that total. The winner will be the highest score. Enjoy!

1. How many laptop computers could you fit side-by-side from the surface of the Sun to the surface of the Earth?
2. Given a car running at highway speeds, how long would it take for it to circle the Earth in hours?
3. If you ate 10 donuts and 10 hamburgers, how long would it take you to burn the calories by jogging disregarding normal bodily processes (as in, the calories burned come only through jogging) in terms of seconds?
4. What is 2 to the power of 100?
5. How many textbooks would fit inside an Olympic-sized swimming pool?
6. What length of time would it take for Usain Bolt do run from Earth to Alpha Centauri given he keeps the same rate throughout in seconds?
7. How many apples can you fit into a standard trash can (i.e. one you would find on the side of the street)?
8. If you used a seesaw to compare the weight of an elephant and the Sun, how many elephants would you need to balance the weight of the Sun?
9. How fast would it take for a photon to travel from the pitcher's mound to home plate of a normal MLB (Major League Baseball) stadium in seconds?
10. How long would it take for Amtrak trains to go from San Francisco to New York City assuming no traffic hiccups?

11.   How many total hours of sleep do all college students get in the United States per night combined (i.e. if one student slept 4 hours and another student slept 8 hours, the total would be 12 hours)?

12.   How long in seconds would it take for a snail to cross the Atlantic Ocean?

13.   How much is spent on gasoline for all cars every year?

14.   How many Earths would fit inside the Milky Way Galaxy?

15.   What amount of cellphones put side-to-side would span across the inside of the Sun?

16.   How many adult human teeth can be fitted inside a normal Mason jar?

17.   How many blue whales put side-to-side would be needed to go around the circumference of the Earth?

18.   What number of tuna cans stacked on top of each other would be needed to go from sea level to the top of Mount Everest?

19.   If a pitcher threw an MLB (Major League Baseball)-normal fastball into space, how long would it take for that fastball to go from the Earth to Pluto at Pluto's farthest distance from the Sun?

20.   How much water is there on the Earth in cubic meters?

21.   How many newspapers would be needed put side-to-side to cover the surface of the Sun?

22.   How many car sunshields going side-to-side would it take to blanket Earth's atmosphere at a height of 400 kilometers?

23.   If a human and an electron stood on a scale, how many humans would balance out the scale with 1 electron?

24.   How much time would it take for a bullet to travel the distance across the length of the stirrup in seconds?

25.   How many soup cans would be needed when the soup is emptied into the Pacific Ocean to fill the Pacific Ocean?

26.   How many basketballs would be needed to fit inside a cell phone?

27.   How many trumpet cases could fit inside the Empire State Building?