

Instructions (shown before students start the test)

Hi! Welcome to Fermi Questions C!

Before you begin, here are some reminders:

- You may only use your brain, writing utensils, and scrap paper to answer the questions. No other materials or resources are allowed (i.e. **NO Calculators**).
- You are not allowed to exit this browser or look anything up. Time outside the browser will be tracked.
- All answers are to be written to the correct power of ten (exponent) as follows: For a number in the form $C \times 10^E$, the guide for rounding of the coefficient (C) is: if C is 5 or greater (to 9.99...), round C up to 10. For example, if the number is 5.001×10^{33} , the correct power of ten is 4. Responses recorded as 5.001×10^3 on the answer sheet will be marked as incorrect. If C is below 5 (and greater than 1), round C down to 1. For example, if the number is 4.99×10^6 , you record 6 as your answer.
- Positive exponents are the default. For negative exponents, the minus (-) sign must be included in the answer. If the number is 1.5×10^{-3} , the correct power of ten is -3
- Teams are allowed to finish before the allotted time: they should hand in their answer sheet, have the time recorded by the event supervisor, and exit the room quietly.

Introduction (shown after students start the test)

You have 50 minutes to complete this test. All units should be specified in the question if needed. As a reminder, you may only use your brain, writing utensils, and scrap paper to answer the questions. No other materials or resources are allowed (i.e. **NO Calculators**). Also, you are not allowed to exit this browser or look anything up. Time outside the browser will be tracked.

Scoring will be as follows:

- High score wins
- Ties are broken by counting the highest number of answers that receive five (5) points. If the number of 5-point answers is the same, the number of 3-point answers will be used. Time is used as the third tiebreaker if needed.
- If the response is **equal to the accepted value**, it earns **5 points**. If the response is **within 1 of the accepted value**, it earns **3 points**. If the response is **within 2 of the accepted value**, it earns **1 point**.
- Scoring Example: If the accepted value is seven and the response given is 7; then five (5) points are awarded. A response of 6 or 8 receives three (3) points and a response of 5 or 9 receives one (1) point.

Best of luck! Have fun!

1. (0.00 pts) I have read the instructions entirely, pledge to not use a calculator, and will maintain complete academic integrity.

- ☐ A) Agree
- ☐ B) Disagree

2. (5.00 pts) How many Popeyes Classic Chicken Sandwiches could you buy with the amount of money spent at the Rio 2016 Olympics?

3. (5.00 pts) [Continuing from the previous question] How many calories would you consume if you ate all of them?

4. (5.00 pts)

In Monopoly, people get 200 dollars every time they pass GO. Let's say I start off with 600 dollars, pass GO thrice an hour and I have played for a fortnight nonstop. I also don't lose any money or gain it from any other means. How much money do I have at the end of that fortnight?

5. (5.00 pts)

Caeleb Dressel recently broke Michael Phelps' world record for the fastest 100 m butterfly. How much heavier is Caeleb Dressel compared to the average weight of an adult male monarch butterfly?

6. (5.00 pts) How many Big Macs are sold per year in the US?

7. (5.00 pts) If you were listening to Michael Jackson's Billie Jean nonstop, how many times could you listen to it in a galactic year?

8. (5.00 pts) How many zeptograms of cattle are in Montana?

9. (5.00 pts)
One of David Copperfield's most memorable illusions was making the Statue of Liberty disappear. How many pennies can you make with the copper in the Statue of Liberty?

10. (5.00 pts) How many steps would it take for an average human to hike the entire Continental Divide Trail?

11. (5.00 pts) How many more times likely I am to get struck by lightning than winning the Mega Millions jackpot?

12. (5.00 pts) If I asked my calculator for a random even integer between $-653!$ and $653!$, what are the chances that I would get the integer 42?

13. (5.00 pts) If you stacked Kit Kats on top of each other, how many Kit Kats would it take to reach the height of Mt. Fuji?

14. (5.00 pts) What is the ratio between the price of the Louisiana Purchase and Elon Musk's net worth?

15. (5.00 pts) How many decigrams of sodium are in 46 fl. oz. Jar of Whole Dill Pickles?

16. (5.00 pts) In normal times when there were in-person classes, how many school lunches were served per school year in the US?

17. (5.00 pts) If $y = 2^x$ and x was the height of the Empire State Building in feet, what is y ?

18. (5.00 pts) How many times more permutations are there to order a standard deck of cards than of a 5 x 5 Rubik's cube?

19. (5.00 pts) How many genes are in a chimpanzee genome?

20. (5.00 pts) How many times could you fly to and from Los Angeles and New York using an average in-state UT Austin tuition for 4 years?

21. (5.00 pts) How many Joules of energy would be released in an earthquake with a magnitude of 10 on the Richter scale?

22. (5.00 pts) How many cwt of potatoes are grown annually in Idaho each year?

23. (5.00 pts) What is the sound intensity (W/m^2) of a whisper at 1 m?

24. (5.00 pts) In the amount of time it took to finish the longest ever chess game, how many times has Uranus orbited the Sun?

25. (5.00 pts) How many shares are traded yearly on the New York Stock Exchange?

26. (5.00 pts) How many MB of data is generated each month on the internet?

27. (5.00 pts) In the time that you have been given to take this test, how many tweets have been sent?

28. (5.00 pts) How many apps are there in the Apple App Store compared to the number of bushels of apples produced by the US annually?

29. (5.00 pts) What is the world record for holding your breath underwater in femtoseconds?

30. (5.00 pts) How much smaller are you compared to the Earth?

31. (5.00 pts) In the amount of time an average person spends sleeping in their lifetime, how many times can they watch the entire 8-movie Harry Potter series?

32. (5.00 pts) If everyone on earth was in the same general location and jumped at the same time, approximately how much would the earth move in meters?

33. (5.00 pts) What is the average density of the core of a neutron star in g/m^3 ?

Thank you and hope you enjoyed the test! If you have any feedback about any of the exams at this tournament, please let us know through this form:
<https://tinyurl.com/utreg21feedback> (<https://tinyurl.com/utreg21feedback>)