

Test time: _____

Fermi Questions

Beachwood Invitational 1/28/23

School Name: _____

Team #: _____

Students: _____

Score: _____

Rank: _____

- 1. DO NOT HAVE YOUR CELL PHONE OUT AT ANY TIME DURING THIS EVENT!** All cell phones, smartwatches, and other electronic devices must remain out of sight and untouched for the duration of the event. **Failure to comply with this rule risks disqualification.**
2. Put your team number on EVERY sheet - including scratch paper, if you use any.
3. Return ALL exam materials at the end of the test. This includes scratch paper.
4. You may separate exam pages, but re-attach them before turning in your test..
5. You are free to write on any part of the test except the Score section, but your answers must be recorded in the Answer box. Answers written anywhere else will not be scored.
6. When you are finished, raise your test in the air so your time can be recorded
7. You will have 50 minutes to complete this test. When time is called, time is up! **DO NOT write after time is up, or you risk disqualification.**
8. Tiebreakers are as follows: 1) number of 5 point answers; 2) number of 3 point answers; 3) shortest time of test completion.

**DO NOT OPEN THIS TEST
UNTIL INSTRUCTED TO
DO SO!**

Fermi Questions

Team #: _____

| Question | Answer | Score |
|---|--------|---------|
| 1. How many students are competing in today's Beachwood Invitational Division C across all teams? | | 5 3 1 0 |
| 2. How many Earths, placed side-by-side, would it take to stretch across the Milky Way Galaxy? | | 5 3 1 0 |
| 3. How long ago, in months, was the first Science Olympiad National Tournament? | | 5 3 1 0 |
| 4. What is the population density of Ohio, in people per acre? | | 5 3 1 0 |
| 5. How many matchbox cars placed end-to-end would it take to make a straight line from Cleveland, OH to Cincinnati, OH? | | 5 3 1 0 |
| 6. How many volleyballs would fit in Lake Erie? | | 5 3 1 0 |
| 7. 7^{17} | | 5 3 1 0 |
| 8. 13^{46} | | 5 3 1 0 |
| 9. How many Earths will fit in the Moon? | | 5 3 1 0 |
| 10. How many total legs would there be in a great hundred dogs plus a score of cats? | | 5 3 1 0 |
| 11. How many honey bees are there in the world? | | 5 3 1 0 |
| 12. How long, in minutes, would it take the average person to type Shakespeare's <i>Romeo and Juliet</i> ? | | 5 3 1 0 |
| 13. How many days ago did John Hancock "John Hancock" the Declaration of Independence? | | 5 3 1 0 |

Total Points on this page: _____

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|--|--------|---------|
| 14. If the entire US population stood in a socially-distanced line, how many millimeters would it stretch? | | 5 3 1 0 |
| 15. What is the land area of Earth in hectares? | | 5 3 1 0 |
| 16. How many runs have been scored in Major League Baseball's history? | | 5 3 1 0 |
| 17. How many accounts follow the most-followed Twitter account? | | 5 3 1 0 |
| 18. How many letters are in the English Alphabet? | | 5 3 1 0 |
| 19. How many grains of rice are in a 10 kilogram bag of rice? | | 5 3 1 0 |
| 20. What are the odds of getting heads on 12 straight flips of a standard quarter? | | 5 3 1 0 |
| 21. How many Earths does a single water molecule weigh? | | 5 3 1 0 |
| 22. How tall was Robert Pershing Wadlow, the tallest known human in history, in attometers? | | 5 3 1 0 |
| 23. What is the weight of an average male Asian elephant, measured in the weight of an average adult American man? | | 5 3 1 0 |
| 24. How much does an average woman's fingernail weigh in rontograms? | | 5 3 1 0 |
| 25. What is the speed of light in meters per second? | | 5 3 1 0 |
| 26. If every fish on earth was being hunted by every cat on earth, how many cats would there be per fish? | | 5 3 1 0 |

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| 27. How many gigaparsecs is it from Beachwood, OH, to Marietta, OH? | | 5 3 1 0 |
| 28. How many text characters are in the content pages of Wikipedia? | | 5 3 1 0 |
| 29. How much electricity was used globally in 2022, in picojoules? | | 5 3 1 0 |
| 30. How many regular M&Ms would fit inside the sun? Assume the M&Ms do not melt or stick together | | 5 3 1 0 |
| 31. How many standard lab goggles would it take to equal the weight of a full-grown adult blue whale? | | 5 3 1 0 |
| 32. How many grains of sand are there on the beaches and deserts on Earth? | | 5 3 1 0 |
| 33. How many days would it take Usain Bolt to run the average distance from the Earth to the moon and back, assuming he runs continuously and at world-record pace the entire time? | | 5 3 1 0 |
| 34. What is the brightness of the sun, in lumens? | | 5 3 1 0 |
| 35. How many fortnights ago did dinosaurs become extinct? | | 5 3 1 0 |
| 36. How many replacement passenger automobile tires are sold in the US every year? | | 5 3 1 0 |
| 37. What is the height of Mt. Everest in exameters? | | 5 3 1 0 |
| 38. How many human babies are born every year? | | 5 3 1 0 |
| 39. An ampere is equal to how many electrons per second? | | 5 3 1 0 |

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| Question | Answer | Score |
|---|--------|---------|
| 40. How many faces are there on a rhombicosidodecahedron? | | 5 3 1 0 |
| 41. How many standard Oreos placed flat, side by side, would it take to circle the earth at the equator? | | 5 3 1 0 |
| 42. How many keys are on a standard piano? | | 5 3 1 0 |
| 43. How many pizzas are ordered in the US every year on Super Bowl Sunday? | | 5 3 1 0 |
| 44. What is the volume of Lake Erie, in attoliters? | | 5 3 1 0 |
| 45. What is the volume of a regulation golf ball, in hectoliters? | | 5 3 1 0 |
| 46. How long would it take a person walking at average human walking speed to travel the distance from NYC to LA? | | 5 3 1 0 |
| 47. How much water goes over Niagara Falls every year, in teraliters? | | 5 3 1 0 |
| 48. How many leaflets do <i>Aesculus glabra</i> (Ohio Buckeye) leaves usually contain? | | 5 3 1 0 |
| 49. 78^{42} | | 5 3 1 0 |
| 50. How many calories will your team expend on this test if you use your full time allotment? | | 5 3 1 0 |

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