

Science Olympiad
Fermi Questions C Division Event
SSSS 2018



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School name: _____

Student name(s): _____ and _____

Team number: _____

Good Luck!

1. How many yoctometers are in a yottameter?
2. What is the magnitude of the force of gravity between you and your computer in Newtons?
3. What is the magnitude of the gravitational potential energy that exists due to your answer in number 2 in British Thermal Units?
4. How many licks to the center of a tootsie pop?
5. 7^{23}
6. How many individual strands of hair are there for the total population on the Faroe Islands?
7. What is the volume of the Pacific Ocean in liters?
8. What about in hogsheads?
9. $1 - 1 =$
10. let $b = e^e$, what is $\ln(b)^b$?
11. How many stars are there in the Milky Way Galaxy?
12. How many snakes are there in Georgia?
13. What is the acreage of 100 Vatican Cities?
14. What is the number of Germans that died in World War 2 divided by the number of Russians that died in World War 2?
15. How many chromosomes are in a somatic human cell?
16. $65!$
17. How many meters would a single straight line be written with the ink of one single pen?
18. How many nanometers would the answer to number 17 be?
19. The Apple Id verification code is a 6-digit code. What are the chances you guess the code correct on your first try?
20. Bob's Burgers is an outstanding burger joint, and consistently receives 5 star ratings. Then one day an individual full of hate gives the place a 4.999999 (9s repeating forever). What is Bob's Burgers rating now?
21. What is the mass of the Earth in Moons?
22. 13^{13}
23. $10^{6.6}$
24. What is the coefficient of the third term for the expansion of $(4a + b)^5$?
25. $F(n) = F(n-2) + F(n-1)$, $F(1) = F(0) = 1$, $F(9) = ?$

26. The Nintendo 3DS and Gameboy are two of the best selling consoles of all time. How many more 3DSs have ever been sold than Gameboys?
27. How many Dollar Menu Hamburgers does a McDonalds have to sell to make a profit of \$100?
28. How many millionaires are there in the world?
29. How many billionaires?
30. how many seconds would it take a Cheetah running max speed to reach the sun?
31. If a human was racing the Cheetah to the sun, by the time the Cheetah got to the sun, how far would the human have ran in meters?
32. What fraction of the distance the Cheetah ran would the human have covered?
33. How many notes are a Cm9 chord (arguably the best chord ever) assuming it is played with a full extended chord voicing?
34. How long would it take the average stenotype student to type this test so far on a stenotype (similar to a typewriter)?
35. Amazon Cognito is a service for creating and storing users and user information in a cloud database. How many users can your database have before Amazon starts to charge you?
36. 12^{34}
37. How many atoms are in a molecule of ATP (Adenosine Triphosphate)?
38. How about in a mole of ATP?
39. What is the average lifespan of Somalian man in eons?
40. How many pages are in the entire Game of Thrones series?
41. How many words are in the entire series?
42. Finally, how many minutes of audiobook is the series?
43. How many 2 liter bottles could Niagara Falls fill in one microsecond?
44. How many hours would it take you to watch all the video uploaded to youtube in a single minute?
45. How many subscribers does Pewdiepie, the most subscribed to channel on youtube have?
46. What is 100 Choose 43?
47. How many of your body's cells die in the average time it takes you to breathe 20 times?
48. How many humans have ever lived?
49. What fraction of them are alive and living in the U.S. Virgin Islands?
50. How many questions on the test did you get 5 points on?

Answer Key:

1. How many yoctometers are in a yottameter? 48
2. What is the magnitude of the force of gravity between you and your computer in Newtons? -8
3. What is the magnitude of the gravitational potential energy that exists due to your answer in number 2 in British Thermal Units? -11
4. How many licks to the center of a tootsie pop? 2
5. 7^{23} 19
6. How many individual strands of hair are there for the total population on the Faroe Islands? 9
7. What is the volume of the Pacific Ocean in liters? 21
8. What about in hogsheads? 18
9. $1 - 1 =$ -infinity
10. let $b = e^e$, what is $\ln(b)^b$? 6
11. How many stars are there in the Milky Way Galaxy? 11
12. How many snakes are there in Georgia? 6
13. What is the acreage of 100 Vatican Cities? 4
14. What is the number of Germans that died in World War 2 divided by the number of Russians that died in World War 2? -1
15. How many chromosomes are in a somatic human cell? 1
16. $65!$ 91
17. How many meters would a single straight line be written with the ink of one single pen? 3
18. How many nanometers would the answer to number 17 be? 12
19. The Apple Id verification code is a 6-digit code. What are the chances you guess the code correct on your first try? -6
20. Bob's Burgers is an outstanding burger joint, and consistently receives 5 star ratings. Then one day an individual full of hate gives the place a 4.999999 (9s repeating forever). What is Bob's Burgers rating now? 1 //real number answer is still 5, math sure is interesting huh?
<https://en.wikipedia.org/wiki/0.999...>
21. What is the mass of the Earth in Moons? 2
22. 13^{13} 12
23. $10^{6.6}$ 6 (really hoping I tricked you :P)
24. What is the coefficient of the third term for the expansion of $(10a + 7b)^5$? 5
25. $F(n) = F(n-2) + F(n-1)$, $F(1) = F(0) = 1$, $F(9) = ?$ 2
26. The Nintendo 3DS and Gameboy are two of the best selling consoles of all time. How many more 3DSs have ever been sold than Gameboys? 7
27. How many Dollar Menu Hamburgers does a McDonalds have to sell to make a profit of \$100? 3
28. How many millionaires are there in the world? 7
29. How many billionaires? 3
30. how many seconds would it take a Cheetah running max speed to reach the sun? 9
31. If a human was racing the Cheetah to the sun, by the time the Cheetah got to the sun, how far would the human have ran in meters? 10
32. What fraction of the distance the Cheetah ran would the human have covered? -1
33. How many notes are a Cm9 chord (arguably the best chord ever) assuming it is played with a full extended chord voicing? 1
34. How long would it take the average stenotype student to type this test so far on a stenotype (similar to a typewriter)? 0

35. Amazon Cognito is a service for creating and storing users and user information in a cloud database. How many users can your database have before Amazon starts to charge you? **5**
36. 12^{36} **36**
37. How many atoms are in a molecule of ATP (Adenosine Triphosphate)? **1**
38. How about in a mole of ATP? **25**
39. What is the average lifespan of Somalian man in eons? **-7**
40. How many pages are in the entire Game of Thrones series? **3**
41. How many words are in the entire series? **6**
42. Finally, how many minutes of audiobook is the series? **4**
43. How many 2 liter bottles could Niagara Falls fill in one microsecond? **0**
44. How many hours would it take you to watch all the video uploaded to youtube in a single minute? **2**
45. How many subscribers does Pewdiepie, the most subscribed to channel on youtube have? **8**
46. What is 100 Choose 43? **28**
47. How many of your body's cells die in the average time it takes you to breathe 20 times? **8**
48. How many humans have ever lived? **11**
49. What fraction of them are alive and living in the U.S. Virgin Islands? **-6**
50. How many questions on the test did you get 5 points on? **aka on a scale from negative infinity to 2 how confident are you in yourself? This one's up to you to figure out.**