

## MATH PURITY TEST

**Scoring:** Count the number of questions to which you respond yes, subtract from 60, and divide by 0.6.

1. Have you ever been excited about math?
2. Had an exciting dream about math?
3. Made a mathematical calculation?
4. Manipulated the numerator of an equation?
5. Manipulated the denominator of an equation?
6. On your first problem set?
7. Worked on a problem set past 3:00 a.m.?
8. Worked on a problem set all night?
9. Had a hard problem?
10. Explained to someone what a vinculum is?
11. Then showed them how to use it?
12. Worked on a problem continuously for more than 30 minutes?
13. Worked on a problem continuously for more than four hours?
14. Done more than one problem set on the same night (i.e., both started and finished them)?
15. Done more than three problem sets on the same night?
16. Taken a math course for a full year?
17. Taken two different math courses at the same time?
18. Done at least one problem set a week for more than four months?
19. Done at least one problem set a night for more than a month (weekends excluded)?
20. Done at least one problem set a night for more than a month (including weekends)?
21. Done a problem set alone?
22. Done a problem set in a group of three or more?
23. Done a problem set in a group of 15 or more?
24. Was it mixed company?
25. Have you ever inadvertently walked in on people doing a problem set?
26. And joined in afterwards?
27. Have you ever used food doing a problem set?
28. Did you eat it all?
29. Have you ever had a domesticated pet or animal walk over you while you were doing a problem set?
30. Done a problem set in a public place where you might be discovered?
31. Been discovered while doing a problem set?
32. Have you ever applied your math to a hard science?
33. Applied your math to a soft science?
34. Done integration by parts?

35. Done integration by parts twice in a single problem?
36. Bounded the domain and range of your function?
37. Used the domination test for improper integrals?
38. Used Newton's Method?
39. Used the Method of Frobenius?
40. Used the Sandwich Theorem?
41. Used the Mean Value Theorem?
42. Used a Gaussian surface?
43. Used a foreign object on a math problem (e.g., a calculator)?
44. Used a program to improve your mathematical technique (e.g., MACSYMA)?
45. Not used brackets when you should have?
46. Integrated a function over its full period?
47. Done a calculation in three-dimensional space?
48. Done a calculation in  $n$ -dimensional space?
49. Done a change of bases?
50. Done a change of bases specifically in order to magnify your vector?
51. Worked through four complete bases in a single night (e.g., using the Graham-Schmidt method)?
52. Inserted a number into an equation?
53. Calculated the residue of a pole?
54. Scored perfectly on a math test?
55. Swallowed everything your professor gave you?
56. Used explicit notation in your problem set?
57. Purposefully omitted important steps in your problem set?
58. Padded your own problem set?
59. Been blown away on a test?
60. Blown away your professor on a test?
61. Have you ever multiplied 23 by 3?
62. Have you ever bounded your Bessel function so that the membrane did not shoot to infinity?
63. Have you ever understood the following quote: "The relationship between  $Z^0$  to  $C_0$ ,  $B_0$ , and  $H_0$  is an example of a general principle which we have encountered: the kernel of the adjoint of a linear transformation is both the annihilator space of the image of the transformation and also the dual space of the quotient of the space of which the image is a subspace by the image subspace"? (Bamberg, P., & Sternberg, S. (1991). *A Course in Mathematics for Students of Physics*. Cambridge, UK: Cambridge University Press.)