Calculator Team 2018–Team Member #1

PSU Math Relays 2018

- For each problem, place your answer in the appropriate blank of the answer sheet provided.
- Give an exact answer whenever possible. Otherwise, round to 3 decimal places.

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1. Let $f(x) = 3x^3 - 2x^2 + 8x - 3$. Find $f(-0.27)$.
2. What is the remainder of 84319 divided by 23?
3. Six of the numbers 5, 6, 7, 9, 12, 15, and 17 were multiplied to get 642600. Which one was left out?
4. Find the sum $1 + 5 + 9 + 13 + \cdots + 109$.
5. Compute $2.83 \times \left[2.03(0.12 + 9.11)^2 + \dfrac{2.86}{1.23}\right]$.
6. Compute $\dfrac{11!}{4!4!} \times \dfrac{5!6!}{8!} \times \dfrac{2!4!}{8!}$.
7. Compute $\sqrt{\left(4\sqrt{5.05} - \sqrt{5.55}\right)\left(\sqrt{5.55} + \sqrt{80.8}\right)}$.
8. What percent of 15 is 66?
9. Compute $\sqrt[5]{91.234}$.
10. Compute $e^{1.23}$
11. $\log_7(54321) \times \log_7(321)$.
12. What is the product of all the real solutions of $3.21x^2 - 2.1x + 0.1$?
13. Find the greatest common factor of 91800 and 44352.
14. Compute $\dfrac{1}{5}\Big\{(2.035 - 4.132)^2 + (1.903 + 2.044)^2 - (3.045 - 1.876)^2 + (4.762 + 0.283)^2\Big\}$.
15. Find the sum $\ln(2) + \ln(3^2) + \ln(4^3) - \ln(5^4)$.

Calculator Team 2018–Team Member #2

PSU Math Relays 2018

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16. Let $f(x) = 5x^3 + 7x^2 + 8x - 13$. Find $f(-1.07)$.

17. What is the remainder of 829319 divided by 23?

18. Six of the numbers 5, 6, 7, 9, 12, 15, and 17 were multiplied to get 385560. Which one was left out?

19. Find the sum $1 + 5 + 9 + 13 + \cdots + 101$.

20. Compute $4.23 \times \left[1.73(0.17 + 9.21)^2 + \dfrac{6.86}{3.09}\right]$.

21. Compute $\dfrac{12!}{5!4!} \times \dfrac{3!6!}{7!} \times \dfrac{2!6!}{8!}$.

22. Compute $\sqrt{\left(8\sqrt{5.05} - \sqrt{3.33}\right)\left(\sqrt{3.33} + \sqrt{323.20}\right)}$.

23. What percent of 15 is 72?

24. Compute $\sqrt[7]{453.98}$.

25. Compute $e^{9.52}$

26. $\log_8(12345) \times \log_8(321)$.

27. What is the product of all the real solutions of $3.21x^2 - 2.1x - 0.1$?

28. Find the greatest common factor of 91800 and 44356.

29. Compute $\dfrac{1}{7}\Big\{(2.035 - 4.132)^2 + (8.903 + 2.044)^2 - (3.045 - 1.876)^2 + (0.762 - 4.283)^2\Big\}$.

30. Find the sum $\ln(2) + \ln(4^2) + \ln(3^3) + \ln(5^4)$.

Calculator Team 2018–Team Member #3

PSU Math Relays 2018

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31. Let $f(x) = -5x^3 + 7x^2 + 15x - 13$. Find $f(8.07)$.

32. What is the remainder of 829319 divided by 21?

33. Six of the numbers 5, 6, 7, 9, 12, 15, and 17 were multiplied to get 963900. Which one was left out?

34. Find the sum $1 + 5 + 9 + 13 + \cdots + 113$.

35. Compute $1.23 \times \left[1.73(0.17 - 9.21)^2 + \dfrac{6.86}{12.09}\right]$.

36. Compute $\dfrac{6!}{5!4!} \times \dfrac{10!6!}{7!} \times \dfrac{2!6!}{12!}$.

37. Compute $\sqrt{\left(2\sqrt{5.05} - \sqrt{3.33}\right)\left(\sqrt{3.33} + \sqrt{465.86}\right)}$.

38. What percent of 16 is 72?

39. Compute $\sqrt[4]{453.98}$.

40. Compute $e^{-0.52}$

41. $\log_3(12345) \times \log_3(321)$.

42. What is the product of all the real solutions of $5.21x^2 - 2.7x - 0.1$?

43. Find the greatest common factor of 91884 and 44356.

44. Compute $\dfrac{1}{6}\Big\{(2.035 - 4.132)^2 - (4.903 + 2.044)^2 - (3.045 - 1.876)^2 + (0.562 - 4.283)^2\Big\}$.

45. Find the sum $\ln(2) + \ln(4^2) + \ln(7^3) + \ln(6^4)$.

Calculator Team 2018–Team Member #4

PSU Math Relays 2018

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46. Let $f(x) = -5x^3 + 7x^2 + 15x - 13$. Find $f(-2.07)$.

47. What is the remainder of 829319 divided by 34?

48. Six of the numbers 5, 6, 7, 9, 12, 15, and 17 were multiplied to get 385560. Which one was left out?

49. Find the sum $1 + 5 + 9 + 13 + \cdots + 117$.

50. Compute $-0.23 \times \left[1.73(10.17 - 9.21)^2 + \dfrac{6.86}{12.09}\right]$.

51. Compute $\dfrac{9!}{5!7!} \times \dfrac{4!6!}{7!} \times \dfrac{2!6!}{12!}$.

52. Compute $\sqrt{\left(2\sqrt{15.05} - \sqrt{3.33}\right)\left(\sqrt{13.33} + \sqrt{465.86}\right)}$.

53. What percent of 16 is 172?

54. Compute $\sqrt[3]{403.98}$.

55. Compute $e^{-3.52}$

56. $\log_5(12345) \times \log_3(321)$.

57. What is the product of all the real solutions of $4.21x^2 - 2.7x - 10.1$?

58. Find the greatest common factor of 91784 and 44346.

59. Compute $\dfrac{1}{8}\Big\{(2.035 + 4.132)^2 + (4.903 + 12.044)^2 - (3.045 - 1.836)^2 + (0.562 - 4.283)^2\Big\}$.

60. Find the sum $\ln(2) + \ln(5^2) + \ln(3^3) + \ln(7^4)$.