

Guts Solutions
HMMT 2000

1. $\pi^e/3$
2. $\frac{XY}{X+Y-1}$
3. 57
4. (1,2)
5. 1, 512, 4913, 5832
6. 3
7. $(\frac{x^2+1}{2})^m$.
8. 14
9. 15
10. $\pi R\sqrt{R^2 + H^2} + 2\pi r^2(1 + \sqrt{1 - \frac{R^2}{r^2}})$
11. 58
12. 274
13. 3
14. $\sqrt{51}$.
15. 2^{49} .
16. (-1,3) and (3,-1)
17. $1 = 3^0$
18. $-\pi/4$
19. 1
20. $3 + 2\sqrt{2} + \sqrt{3} + \sqrt{6}$
21. 546
22. 2008
23. 224640

24. 6

25. 1113122113111221

26. 313

27. 325

28. $1/6$

29. 3

30. 1

31. D is harmonic conjugate of C, standard construction.

32.

33. Of the form $4n + 2$.

34.

35. $2/3$

36. 90 degrees

37.

38. $3^{3^{3^{888}}}$

39. 254.50000... (more than 100 zeros).

40. n any odd number, $p = 2$

41. $h = \frac{1}{4b} \sqrt{(a+b)(3b-a)}$

42. $n(n^2 + 1)/2$

43. 120/1147

44. $f(0) = -1, f(1) = 1$

45. 1999000, 2000

46. 1,2

47.