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# Mathematical Evolution

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**Across**

1. Long tales
6. Certain dog food
10. Bivalent logic value
14. About
15. Something on a foot or ear
16. Curve with equation  $r = a \sin(n\theta)$
17. A grade school start to a mathematical life
19. Pitcher
20. \_\_\_\_\_ 5 (when 8 becomes 3)
21. Dole
23. Fruit part
24. Miami's county
27. As \_\_\_\_\_ Methuselah
31. Oink joint
32. It had to \_\_\_\_\_ (not you)
33. UFO pilots
34. \_\_\_\_\_ Temple Bell, 1931–1932  
MAA president
35. Units of visible light
36. An undergraduate study of transformations
40. Next to last, briefly
41. Thug
42. A lack of societal standards
43. Shrek, for one
44. MS-\_\_\_\_\_
47. 12
48. Computer rule GRP
49. Only
50. Forty winks
52. Coins, not notes
54. An invariant under isometries of the plane
57. A graduate study of differential forms
60. Type of space or hypothesis
61. Tops
62. Newspapers, for one
63. Spreads hay
64. Statistician's forte
65. Hammer parts

**Down**

1. Rogues
2. Dry
3. Graphically; mesh-like
4. Misbehave
5. Satirist Mort
6. *Often one*
7. *Sometimes odd*
8. *Rarely even*
9. *Never many*
10. Graph theory branch?
11. Vector type
12. Employ
13. Suffix with profit
18. Not too much nor too little
22. TNT part
25. Arab leader
26. Figure constructible with straightedge and compass
28. Hinds and stags
29. \_\_\_\_\_ Johnson Pell Wheeler, Bryn Mawr colleague of Emmy Noether
30. Example of CPCTC
32. A geodesic in nature
33. The Arabic system of numeration
36. Former late night host
37. Where Dorothy landed
38. V, 8, for example?
39. Inverses of exponentials
40. I or note follower?
44. Cryptologist's action
45. Where the  $x$ - and  $y$ -axis meet
46. So long and toodle-oo
48. Where the natural numbers begin
49. Saloon brawl
51. Colin Maclaurin was one
53. \_\_\_\_\_ and circumstance
54. Army follower?
55. Regret
56. Yore
58. Males
59. Cake, bran, or meal

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Jeremiah Farrell and William Johnston

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1	2	3	4	5		6	7	8	9		10	11	12	13
14						15					16			
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23					24	25	26			27		28	29	30
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42							43					44	45	46
47						48					49			
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54	55	56			57		58	59						
60					61					62				
63					64					65				

The clues begin on the left, on page 444. The Solution is on page 479.

Extra copies of the puzzle can be found at the Monthly's website, [http://www.maa.org/amm\\_supplements](http://www.maa.org/amm_supplements).