ACROSS

- 1. Like some avengers
- 6. Like show horses' feet
- 10. Marines ranked just above Pvts.
- 14. Pain reliever brand
- 15. Source of protein for vegetarians
- 16. The E in QED
- *17. 2006 (Australian)
- **19.** Constellation whose principal star is Vega
- 20. Signal used to find shipwrecks
- **21.** Type of plane transformation
- *22. 1950 (French)
- **27.** Gawk at
- **28.** Align the crosshairs
- 29. Willy of "Free Willy"
- **30.** "Skinny Legs _____": 1990 Tom Robbins novel
- 34. Common ending of chemical sugars
- **37.** What the answers to all of the starred clues are
- 40. Birth mo. of Euler
- **41.** Solvent formed when a hydroxyl group is protonated
- **42.** Style of jazz singing
- 43. Auguste Chevalier, to Evariste Galois
- 44. Colt's mother
- ***45.** 1954 (French)
- 53. Ends of prayers
- 54. Widely used text: "Abstract Algebra" by Dummit & _____
- 55. Writer/director Ephron
- *56. 2010 (Vietnamese)
- **61.** Gas or elec., e.g.
- **62.** "Alas!"
- **63.** Computer operators
- 64. Gets
- 65. Snake's sound
- **66.** Sri _____

DOWN

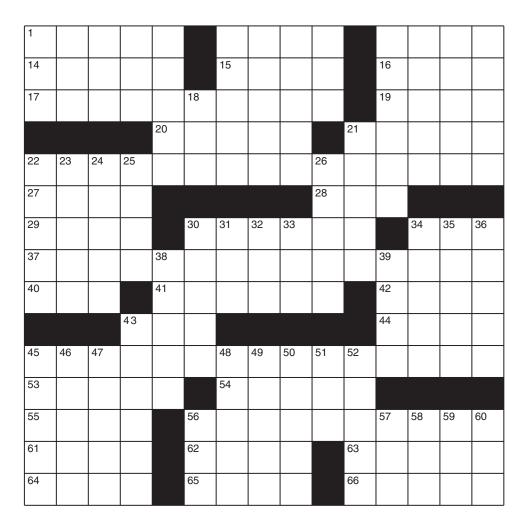
- 1. Schroedinger's pet in a box
- 2. It comes in Pale and Brown varieties
- 3. Each
- 4. WALL-E's love
- **5.** Adjective that describes the set ℚ vis-a-vis the set ℝ, e.g.
- 6. Surgical tube
- 7. "It's _____ heck in here!"
- 8. Saint Joan _____
- 9. Twosome

- **10.** Denzel Washington movie: "The Taking of _____ 123"
- **11.** Appliance with an oil vat and basket
- 12. Unit of mass and gold purity
- 13. Premium cable channel
- 18. Not pro
- 21. Term for bad, watered down beer
- **22.** Bath sponge
- **23.** "Get _____!"
- 24. Stomach malady
- **25.** Like some numbers
- 26. Islamic equivalent of kosher
- **30.** Computer scheme for character-encoding
- 31. Weekly music magazine in the UK
- **32.** This can be used to identify whether a system of eqns. has a soln.
- **33.** Mathematician and pioneering computer scientist Lovelace, credited with writing the first ever computer program
- **34.** Algebraic geometer Zariski, 1981 Wolf Prize winner
- 35. Drummer with Lennon and McCartney
- **36.** Cosmetician Lauder
- **38.** Reduces the amplitude of an oscillating system
- **39.** "Woe _____!"
- **43.** _____ of Mathematics: bimonthly journal published in Princeton
- **45.** Two-faced Roman god who is an eponym for a month
- 46. Express dismay or elation, for instance
- 47. Eagle's home
- **48.** Run of letters towards the beginning of the alphabet
- **49.** You'll find infinitely many of these in the Hilbert Hotel
- 50. Judges' wear
- **51.** Greek letter used to denote the Dirichlet function that is the alternating version of the series expression for the Riemann zeta function
- **52.** Asian capital, and the location of the 2014 ceremony to recognize more 37-Across
- 56. Slangy "no"
- 57. Jefferson Davis was its Pres.
- 58. Rooster's partner
- 59. Noah built one in the Bible
- **60.** Home country of eleven 37-Across, to date (abbr.)

Award Winners

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Clues are at left, on page 360. The solution is on page 402.

Extra copies of the puzzle, in both .pdf and .puz (AcrossLite) formats, can be found at the MAGAZINE's website, or (temporarily) at http://www.mathematicsmagazine.org.

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A1046. Because $\int_{a}^{b} f(x) dx = 0$, it follows that

$$\int_{a}^{b} xf(x) \, dx = \int_{a}^{b} \left(x - \frac{a+b}{2} \right) f(x) \, dx.$$

By the Triangle Inequality for Integrals and the bound $|f(x)| \le M$,

$$\left| \int_{a}^{b} xf(x) \, dx \right| = \left| \int_{a}^{b} \left(x - \frac{a+b}{2} \right) f(x) \, dx \right|$$
$$\leq \int_{a}^{b} \left| x - \frac{a+b}{2} \right| \left| f(x) \right| \, dx \leq M \int_{a}^{b} \left| x - \frac{a+b}{2} \right| \, dx$$
$$= 2M \int_{a}^{(a+b)/2} \left(\frac{a+b}{2} - x \right) \, dx = \frac{M(b-a)^{2}}{4}.$$

Solution	to p	ouzz	zle o	on p	oage	e 36	0									
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