

## 2009 Calendar: 12 Theorems by Women Mathematicians

from [www.theoremoftheday.org](http://www.theoremoftheday.org)

This is the second in what I hope will be an infinite series of calendars. I am happy to say that it was again an easy matter to find, during the course of the last year, plenty of beautiful theorems which were proved, or jointly proved, by women. Much more difficult was choosing theorems to which justice might be done within the one-page format of Theorem of the Day. The goal is that every theorem should be illustrated concretely enough that even a non-mathematician should be offered something to think about. So far, this goal has eluded me in large areas of mathematics where women have contributed some very important results. I need to find a clever way to communicate representation theory before including Bhama Srinivasan's classic work on finite reductive groups; a clever way to illustrate closed geodesics on hyperbolic surfaces before including the deep results of Linda Keen or Maryam Mirzakhani; a clever way to tackle differential geometry in general before I can pay homage to Sun-Yung Alice Chang.

My file of results called 'amazing but difficult!' is growing all the time; it will all by degrees get included in future calendars in the years to come, thanks to the help and advice which is given to me so unstintingly by so many experts. Those who contributed, sometimes very significantly, to what is presented in this calendar are: Fatima Affif Chaouche, David L. Applegate, Arthur T. Benjamin, Curtis D. Bennett, Bill Cook, Ioana Dumitriu, Tony Forbes, Xiaoyang Gu, John H. Halton, Anthony Hilton, Peter Jones, Tony Knapp, Cheng Yeaw Ku, Jeffrey Lagarias, Jack Lutz, Claudia Malvenuto, Shawn McMurren, Elvira Mayordomo, Frank Morgan, Peter M. Neumann, Carla Savage, Jon Selig, Joel Spencer, J. Michael Steele, Carrie Rutherford, Jim Tattersall, Emil Vaughan, Walter Wallis, Catherine Yan and Doron Zeilberger. I should mention particularly Carrie Rutherford's Maths Study Group at London South Bank University, which is a great source of inspiration and expertise, as is Peter Cameron's Combinatorics Study Group at Queen Mary University of London. And I should hasten to add that any residual errors are all my own unaided work.

Of course, the most important contribution of all is the insight and inspiration of those women whose mathematics is celebrated here:

<b>January</b>	Catherine Yan (who also coauthors the recommended web link for May)
<b>February</b>	Emmy Noether
<b>March</b>	Mary Cartwright (the recommended web link is coauthored by Shawn McMurren)
<b>April</b>	Sylvie Corteel and Carla D. Savage
<b>May</b>	Ioana Dumitriu
<b>June</b>	Katherine Heinrich
<b>July</b>	Sheila Oates Macdonald
<b>August</b>	Kathleen Ollerenshaw
<b>September</b>	Kate Okikiolu (the recommended web link is coauthored by Elvira Mayordomo)
<b>October</b>	Claudia Malvenuto
<b>November</b>	Jillian Beardwood
<b>December</b>	Esther Klein

More information can be found by following the relevant links from the Index of Mathematicians at the Theorem of the Day web site.

With the exception of International Women's Day on March 8, I have abandoned any pretence at supplying each month with relevant holidays, religious observances, independence days etc. I recommend that you insert those that are relevant to you with the help of the Internet. I have opted instead to mark the anniversaries of famous women mathematicians, with my criteria for inclusion being that they appear in Robyn V. Young's admirable *Notable Mathematicians* (Gale, Detroit, 1998) and that they do not belong to the set of living mathematicians — the proportion of notable women in this latter set is growing too fast to record reliably, a happy circumstance for the future of my infinite series of calendars and for the future of mathematics in general.

Robin Whitty, London, November 2008

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**Photo credits:** appearing on the front cover, clockwise from top left, are Catherine Yan, Ioana Dumitriu, Claudia Malvenuto, Mary Cartwright, Carla Savage and Emmy Noether. My thanks to all these people for letting me use their photographs, except Cartwright and Noether whose pictures are from the indispensable MacTutor History of Mathematics archive at [www-history.mcs.st-and.ac.uk/](http://www-history.mcs.st-and.ac.uk/).

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