

Puzzler of the Month

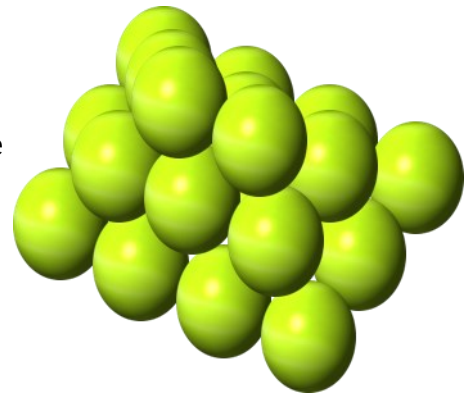
March 2018

From the Monroe Community College Mathematics Department

Solve this puzzle and you could win a prize!*

A large collection of spheres, each with a radius of 1 inch are stacked as described below:

The bottom row consists of a 1000×1001 rectangular array of spheres sitting on a flat table so that each sphere touches its neighbors. On top of this layer lies a 999×1000 rectangular array of touching spheres, each which lies in the “dimples” created by the layer below. This continues until one reaches the top where we have a 1×2 rectangular array of spheres. The top three layers are shown in the figure to the right.



Determine the total number of spheres that are stacked and the total height of the stack. Include sufficient work to support your answers.

Solutions must be submitted by March 30

To submit a solution:

1. Neatly write up your solution, clearly identifying the answer and clearly showing all work when requested.
2. Include your name and email (so we can contact you if you win the prize).
3. On the Brighton Campus, solutions may be submitted in the Puzzler of the Month drop box in the Math Learning Center (11-204). Solutions at the Downtown Campus can be submitted to Michael Eames (Mathematics), office 574-M.

You may also submit solutions by emailing Steve Kilner at skilner@monroecc.edu (please indicate “puzzler solution” as the subject). Faculty and staff may use inter-departmental mail.

For official rules and more details go to the Math Learning Center 11-204 or visit our website: www.monroecc.edu/go/mathpuzzler.

