Apéry's Constant Competition

This competition has now closed. The winner is

Mark Underwood

with his entry

32/107 + 115/537 + 611/887

which uses no functions at all, or numbers over 1000, and yet is still accurate to 16 decimal places! It is equal to

1.2020569031595942348618….

Congratulations Mark!

Tim

Apéry's Constant is simply the sum of the reciprocals of the cubes, that is,

1/(1^3) + 1/(2^3) + 1/(3^3) + 1/(4^3) + ….

That is,

1 + 1/8 + 1/27 + 1/64 + ...

which equals

1.202056903159594285399….

I'm offering a prize of a bottle of champagne (or an equivalent monetary prize, if the winner prefers) for the NEATEST **closed-form** approximation to Apéry's Constant.

Entries must be received by 12pm (midday) GMT on 12th May 2018.

The winner will be determined entirely by me, so will be very subjective. If two or more entries are essentially identical, the earliest submission will take preference.

By **closed-form** is meant that the entry cannot contain summation signs, or integral signs, or infinite series, or anything of their ilk.

Let me give you two examples of mine that are NOT neat and would not win.

*(5860987 / 151180351) * pi^3 = 1.20205690316…*

is accurate to 14 decimal places, but is not neat because it uses huge numbers. And of course, if one is allowed to use larger and larger numbers, one can get as close as one likes.

*(436 ln(3) + 25 sqrt(5)) / 720 * phi = 1.20205690552…*

where ln(3) is the natural logarithm of 3, sqrt(5) is the square root of 5, and phi is the golden ratio, is quite neat, because the largest number it uses is only 3 figures, but is only accurate to 8 decimal places.

Please feel free to advertise this competition amongst friends, enemies, etc.

Entries can either be posted publicly to the Yahoo! Group at
https://groups.yahoo.com/neo/groups/UnsolvedProblems/
or emailed to me privately at timro21@gmail.com.

Tim

28th March 2018