

# Intrigued?

When  $4444^{4444}$  is written in decimal notation, the sum of its digits is  $A$ . Let  $B$  be the sum of the digits of  $A$ . Find the sum of the digits of  $B$ .

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with pizza, cake, or cookies.

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[gdantasemo@haverford.edu](mailto:gdantasemo@haverford.edu) to get more info.



# Good With Numbers?

Evaluate

$$\sin\left(\frac{\pi}{11}\right) \sin\left(\frac{2\pi}{11}\right) \dots \sin\left(\frac{10\pi}{11}\right)$$

exactly.

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# Like Math?

Can three points with integer coordinates in the plane be vertices of an equilateral triangle? What about in three dimensions?

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# Enjoy Puzzles?

Can you show how to express any positive fraction as a sum of distinct positive reciprocal whole numbers?

For example,

$$7/3 = 1/1 + 1/2 + 1/3 + 1/4 + 1/5 + 1/20$$

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# Curious?

Can the portion of any parabola inside a circle of radius 1 have a length greater than 4?

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# Got a Calculator?

Find the 2000th digit in the square root of  $N = 11\dots 1$ , where  $N$  contains 1998 digits, all of them 1's.

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