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Problem 3. What is the largest integer n so that a regular n -gon with sidelength 1 will fit inside a circle of radius 1?



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Problem 4. If you have 2 black socks and 3 green socks in a drawer, how many socks must you take out in order to be guaranteed a matching pair?

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Problem 5. If you have 2 black socks and 3 green socks in a drawer, in the long run, what is the average number of socks you must take out in order to have a matching pair?

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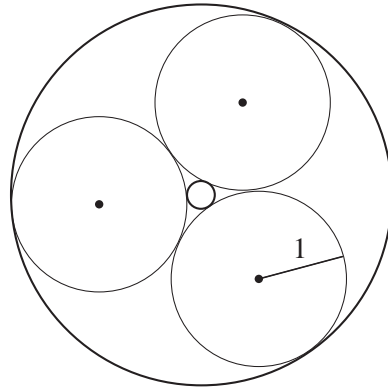
Problem 6. How many positive factors does the number 288 have (including 1 and 288)?

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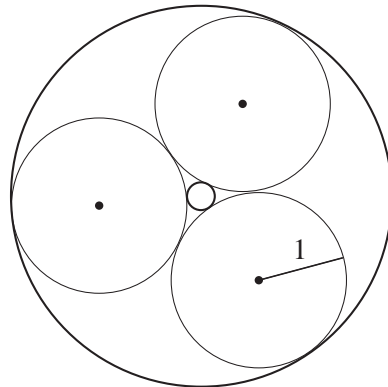
Problem 7. What is the sum of all the positive factors of 288 (including 1 and 288)?

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Problem 8. The three middle circles in the figure have radius 1. What is the sum of the radii of the smallest and largest circles?



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Problem 9. How many integers between 7 and 2007 inclusive are divisible by neither 3 nor 5?

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Problem 10. What is the sum of the digits of 11^7 ?

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