

# October 2024 Problem of the Month

How many solutions  $(a, b, c)$  are there for the following equation where  $a, b, c$  are all positive integers with  $a > 1$ ?

$$a^b * c = 4096$$

Note that  $2^{12} = 4096$ . To get you started a couple of the solutions are  $(2, 12, 1)$  and  $(4, 3, 64)$ .

Please email solutions to Dr London at [slondon@luc.edu](mailto:slondon@luc.edu) in PDF form by 11:59 pm on October 31. Please clearly state your name, whether you are an undergraduate, and your major on your solution. The solution with the best explanation from a Loyola undergraduate will be the winner.



*Preparing people to lead extraordinary lives*