

Frobenius number of relatively prime three Lucas numbers

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Let a_1, a_2, \dots, a_n ($n \geq 2$) be positive integers with $\gcd(a_1, a_2, \dots, a_n) = 1$. Finding the largest positive integer N such that the Diophantine equation

$$a_1x_1 + a_2x_2 + \dots + a_nx_n = N$$

has no solution in non-negative integers is known as the Frobenius problem. Such the largest positive integer N is called the Frobenius number of a_1, a_2, \dots, a_n . Various results of the Frobenius number have been studied extensively, see [1]–[8]. In this talk, the Frobenius problem is discussed in the cases $n = 2$ and 3 . In particular, we determine the formula for the Frobenius number of relatively prime three Lucas numbers other than results of S. Ýlhan and R. Kýper in [8].

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References

- [1] A. Brauer and J.E. Shockley, On a problem of Frobenius, *J. Reine Angew. Math.*, 211 (1962), 215–220.
- [2] B.K. Gil et al., Frobenius numbers of Pythagorean triples, *Int. J. Number Theory*, 11 (2015), 613–619.
- [3] J.M. Marín, J.L. Ramíres Alfonsín and M.P. Revuelta, On the Frobenius number of Fibonacci numerical semigroups, *Integers*, 7 (2007) no. A14, 1–7.
- [4] D.C. Ong and V. Ponomarenko, The Frobenius number of geometric sequences, *Integers* 8 (2008), A33, 1–3.
- [5] Ö.J. Rödseth, On a linear Diophantine problem of Frobenius, *J. Reine Angew. Math.*, 301 (1978), 171–178.

- [6] E.S. Selmer and Ö. Beyer, On the linear Diophantine problem of Frobenius in three variables, *J. Reine Angew. Math.*, 301 (1978), 161–170.
- [7] A. Tripathi, Formulae for the Frobenius number in three variables, *J. Number Theory*, 170 (2017), 368–389.
- [8] S. Ýlhan and R. Kýper, On the Frobenius number of some Lucas numerical semigroups, *Acta Univ. Apulensis Math. Inform.*, 16 (2008), 179–183.