DOES THE JONES POLYNOMIAL DETECT UNKNOTTEDNESS?

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Abstract. There have been many attempts to settle the question whether there exist nontrivial knots with trivial Jones polynomial. In this paper we show that such a knot must have crossing number at least 18. Furthermore we give the number of prime alternating knots and an upper bound for the number of prime knots up to 17 crossings. We also compute the number of different HOMFLY, Jones and Alexander polynomials for knots up to 15 crossings.