

Problem for 1997 December

proposed by Dan Jurca

A fair six-sided die (with sides showing $1, 2, \dots, 6$) is rolled n times, and the product P of the numbers shown is computed.

- What is the probability $p(n)$ that P is divisible by 10?
- What is $\lim_{n \rightarrow \infty} p(n)$?
- Is $p(n)$ an increasing function of n ?
- What is the least n such that $1/2 \leq p(n)$?