

**ZMATH 2016e.00901**

**Benacka, Jan**

**Calculating ellipse area by the Monte Carlo method and analysing dice poker with excel at high school.**

Int. J. Math. Educ. Sci. Technol. 47, No. 6, 976-986 (2016).

Summary: This paper reports on lessons in which 18–19 years old high school students modelled random processes with Excel. In the first lesson, 26 students formulated a hypothesis on the area of ellipse by using the analogy between the areas of circle, square and rectangle. They verified the hypothesis by the Monte Carlo method with a spreadsheet model developed in the lesson. In the second lesson, 27 students analysed the dice poker game. First, they calculated the probability of the hands by combinatorial formulae. Then, they verified the result with a spreadsheet model developed in the lesson. The students were given a questionnaire to find out if they found the lesson interesting and contributing to their mathematical and technological knowledge.

*Classification:* K50 K60 K90 G40

*Keywords:* modelling; random process; simulation; spreadsheets

doi:10.1080/0020739X.2015.1123313