

CCWA OPEN PROBLEMS GARDEN

JAMIE SIMPSON

“Mathematics is kept alive by the appearance of new unsolved problems, problems posed from within mathematics itself, and also from the increasing number of disciplines where mathematics is applied. This book provides a steady supply of easily understood, if not easily solved, problems which can be considered in varying depths by mathematicians at all levels of mathematical maturity.”

Unsolved Problems in Number Theory

Richard Guy

It is intended that the format of the CCWA Open Problems Garden should be loosely based on Richard Guy’s book, quoted above. This collection of problems was first published in 1981, with its third and latest edition appearing in 2004. (Perhaps there will even be fourth edition: in 2016, age 99, Richard climbed 802 steps of the Calgary Tower in support of a local charity.) His book has been hugely influential amongst number theorists. According to Google Scholar it has been cited over 2000 times, but its influence in terms of the research it has inspired surely goes well beyond these numbers.

The format of the book is as follows. There are six chapters, each covering a broad area in number theory (primes, divisibility, additive number theory, and so on). Each chapter is divided into around 30 sections, short and largely independent. A section may deal with a single problem or a set of closely connected problems. Each section has its own set of references, often extensive, but the problem descriptions are short. There are no proofs, and known results are stated in the text without using “Theorem” or “Lemma” as headings. These features make the book extremely readable.

In order to create a similar document for our area, initially in on-line form, we invite submissions from our colleagues. These may take the form of an entire section, or be an addition to an existing section, or just a single problem which the editors will insert somewhere appropriate. New problems are welcome, but our main aim is to collect in

one place all the interesting problems that have already appeared in the literature. All contributions will be publicly acknowledged, unless the contributor requests anonymity.