

ZMATH 2010c.00027

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Mathematics problems from ancient Egyptian papyri.

Math. Teach. (Reston) 103, No. 5, 332-339 (2009).

Summary: Most high school mathematics teachers completed a mathematics history course in college, and many of them likely found it intriguing. Unfortunately, very few of them find the time to allow much, if any, mathematics history to trickle into their instruction. However, if mathematics history is taught effectively, students can see the connections across content areas and view mathematics not as a course of study but as an integrated whole. Ancient Egyptian mathematics lends itself readily to such overlapping of history and high school mathematics. Most of mathematics teachers' knowledge of mathematics in Egypt is derived from two sizable papyri, the larger Rhind Papyrus and the older Moscow Papyrus. The Rhind and Moscow Papyri contain problems that lack discussion of underlying principles. Because theorems or proofs are absent, teachers are left to search for the reasoning behind the Egyptians' methods by studying the solutions of various examples. Nevertheless, some remarkable results were obtained. In this article, the author focuses on three types of problems found within the ancient papyri: (1) squaring a circle and thus approximating pi (problems 48 and 50 of the Rhind Papyrus); (2) arithmetic and geometric sequences (problems 40, 64, and 79 of the Rhind Papyrus); and (3) volumes of truncated square pyramids (problem 14 of the Moscow Papyrus). (Contains 7 figures.) (ERIC)

Classification: A30 G30 I30

Keywords: geometric concepts; history of mathematics; Egyptian mathematics; holistic approach; arithmetic; geometry; mathematical concepts; algebra; equations