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Students' use of *Derive* software in comprehending and making sense of definite integral and area concepts.

Hitt, Fernando (ed.) et al., Research in collegiate mathematics education. VII. Providence, RI: American Mathematical Society (AMS); Washington, DC: Mathematical Association of America (MAA) (ISBN 978-0-8218-4996-5/pbk). CBMS Issues in Mathematics Education 16, 29-61 (2010).

Summary: The study documents representations, resources and strategies that first-year engineering students demonstrate as a result of using *Derive* software to comprehend and solve problems that involve the concept of definite integral. Three student profiles appear to emerge from analysis of their problem-solving approaches: (a) students who relied on the use of the software as a means to validate their paper and pencil work, (b) those who used the software to represent graphically and calculate approximated areas and (c) a group of students who combined both paper and pencil and software approaches to solve problems but often did not connect concepts that appeared in the study of the definite integral with basic ideas (and procedures) previously studied (e.g., area of simple figures). There is evidence that the use of *Derive* software helped students elicit ideas that needed to be discussed in order to refine their initial approaches to problems.

Classification: I55 R25 C75

Keywords: engineering education; definite integrals; computer algebra; mathematics and computers teaching-learning processes; educational research