

*Ogren's Theorem Revisited*

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<p>Travis Thompson graduated from the University of Arkansas in 1977 (Ph.D. mathematics) and has been in higher education since that time.</p> <p>Jose Villatoro graduated from Harding University with a B.S. degree in mathematics and is currently a successful businessman in Central America</p>	<p>Ogren's Theorem (Thompson &amp; Ogren, 1992) is a generalization of the rather unusual test for divisibility of an integer by 7. One may recall that to test an integer <math>A</math> for divisibility by 7, the following procedure is followed:</p> <ol style="list-style-type: none"><li>1. The last digit of <math>A</math> is stripped and doubled;</li><li>2. This number is subtracted from the number represented by the remaining digits of the original number <math>A</math>;</li><li>3. If the new number is divisible by 7, then the original number is divisible by 7.</li></ol> <p>For example, consider the integer 9961. Following the above rule, we would strip the last digit, 1, double it to 2, and subtract from 996, resulting in 994. A second application of the algorithm yields 91, and a final application results in 7—obviously divisible by 7. Therefore, the original number 9961 is divisible by 7.</p> <p>A generalization of this technique can produce divisibility rules for other odd divisors that are not multiples of five.</p>
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