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Arithmetic Progressions in the Polygonal Numbers.

In this talk, we investigate arithmetic progressions in the polygonal numbers with a fixed number of sides. We first show that four-term arithmetic progressions cannot exist. We then describe explicitly how to find all three-term arithmetic progressions. Finally, we show that not only are there infinitely many three-term arithmetic progressions, but that there are infinitely many three-term arithmetic progressions starting with an arbitrary polygonal number. Special attention is paid to the case of squares and triangular numbers. (Received September 15, 2013)