

Title: A unified proof of some conjectures on cycle lengths

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Abstract: We prove a tight minimum degree condition in general graphs for the existence of paths between two given endpoints, whose lengths form a long arithmetic progression with common difference one or two. This allows us to obtain a number of exact and optimal results on cycle lengths in graphs of given minimum degree, connectivity or chromatic number. Joint work with Jun Gao, Qingyi Huo and Chun-Hung Liu.