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**Ga Yee Park\*** (gpark@smith.edu), **Vivian Li** (xili@smith.edu), **Rebecca Roberts** (rmroberts@smith.edu) and **Lisa Wang** (lwang76@smith.edu). *Number Theory on Square-tiled Surfaces I*. Preliminary report.

We study geodesics on square-tiled surfaces that are composed of diagonals of the squares. The dimensions of a surface are “relatively prime” if there are no geodesic loops. The “gcd” is related to the number of loops and the “lcm” is related to the lengths of loops and paths between vertices. We have results for a number of surfaces. (Received September 18, 2015)