## Part 1 Proof

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Provide a proof to derive the formulas for the "SELECT AVG(X) FROM D WHERE c" query under "Fixed-size without Replacement" (i.e., row 3 and column 3) in Table 2 of the following paper:  $http://web.eecs.umich.edu/~mozafari/php/data/uploads/approx_chapter.pdf$ 

Proof: