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Calculation of the Potential and Electric Flux Lines for Parallel Plate Capacitors with Symmetrically Placed Equal Lengths by Using the Method of Conformal Mapping

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Abstract: The classical problem of the parallel-plate capacitors has been investigated by a number of authors, including Love [1], Langton [2] and Lin [3]. In this paper, the exact equipotentials and electric flux lines of symmetrically placed two thin conducting plates are obtained using the Schwarz- Cristoffel transformation and the method of conformal mapping. The coordinates x, y in the z-plane corresponding to the constant electric flux lines and equipotential lines are obtained after very detailed and cumbersome calculations. The complete field distribution is given by constructing the family of lines of electric flux and equipotential.

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