

A complex-analytic approach to certain flow properties of irrotational travelling water waves

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Using an approach relying on complex analysis we discuss the logarithmic convexity of certain flow quantities associated with irrotational periodic travelling waves that propagate at the surface of water over a flat bed. As a by-product, we deduce, for instance, that the kinetic energy, the time-period of the particle paths, and the length of a streamline are larger near the surface and reduce with increasing depth.