EXPONENTS OF REGULAR CAYLEY MAPS

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A regular Cayley map is an embedding of a Cayley graph in an orientable surface such that the orientation-preserving automorphism group of the embedding acts regularly on darts and in which the Cayley group acts regularly on vertices of the embedding. An exponent of a regular Cayley map is a number e with the property that (roughly speaking) the Cayley map is isomorphic to its 'e-fold rotational image'. We establish necessary and sufficient conditions for a number e to be an exponent of a regular Cayley map and discuss a number of related results.