



Math for the people, by the people.

catacaustic

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Given a plane curve γ , its *catacaustic* (Greek *κατά καυστικός* ‘burning along’) is the envelope of a family of rays reflected from γ after having emanated from a point (which may be infinitely far, in which case the rays are initially parallel).

For example, the catacaustic of a logarithmic spiral reflecting the rays emanating from the origin is a congruent spiral. The catacaustic of the <http://planetmath.org/ExponentialFunction> exponential curve $y = e^x$ reflecting the vertical rays $x = t$ is the catenary $y = \cosh(x+1)$.