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### **A Transformation Based on the Cubic Parabola $y = x^3$**

A particular geometric transformation is investigated, the  $\Lambda$ -transformation. It is defined on the set  $T$  of tangent lines of the cubic parabola  $C^3 : y = x^3$  in the Euclidean plane  $R^2$ . Let  $t$  be any line from the set  $T$ . The point  $X \in t$  is called the image of a certain point  $M \in t$  under the  $\Lambda$ -transformation, if the condition  $(PQMX) = \lambda$  ( $\lambda \in R$  and  $\lambda \neq 0, 1$ ) holds, where  $(PQMX)$  is the cross-ratio of the four points;  $P$  is the point of contact, and  $Q$  is the remaining point of intersection between the tangent line  $t$  and the basic curve  $C^3$ . Varying the line  $t$  in the set  $T$  and the point  $M$  along the line  $t$  we obtain a transformation of the plane  $R^2$  into  $R^2$ . The image of any straight line  $p \in R^2$  is discussed too.

**Keywords:** Lambda-transformation, quadratic transformation.

**MSC:** 51N15; 51N35