

# CLASSES OF FUNCTIONS STARLIKE WITH RESPECT TO OTHER POINTS

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### Abstract

Let  $S$  be the class of functions  $f$  which are analytic and univalent in the open unit disc  $D = \{z : |z| < 1\}$  given by  $f(z) = z + \sum_{n=2}^{\infty} a_n z^n$  and  $a_n$  a complex number. Let  $T$

denote the class consisting of functions  $f$  of the form  $f(z) = z - \sum_{n=2}^{\infty} a_n z^n$  where  $a_n$  is a non negative real number. In [5], Sakaguchi introduced the class of analytic functions which are univalent and starlike with respect to symmetric points. Such class is denoted by  $S_s^*$  and satisfies  $\operatorname{Re} \left\{ \frac{zf'(z)}{f(z) - f(-z)} \right\} > 0$  for  $z \in D$ . Arising from

the above introduction, there have been numerous papers on extended and generalised classes of functions. In [2], Halim et al. introduced 3 subclasses of  $T$ ;  $S_s^*T(\alpha, \beta)$ ,  $S_c^*T(\alpha, \beta)$  and  $S_{sc}^*T(\alpha, \beta)$ , consisting of analytic functions with negative coefficients and are respectively starlike with respect to symmetric points, starlike with respect to conjugate points and starlike with respect to symmetric conjugate points. Here,  $\alpha$  and  $\beta$  are to satisfy certain constraints. This paper extends the result in [2] to other properties namely growth and extreme points.

**Keywords:** Analytic, univalent, functions starlike with respect to symmetric points.