Let $f : \mathbb{N} \to \{0, \pm 1\}$, for $n \in \mathbb{N}$ let $\Pi[n]$ be the set of partitions of n, and for all partitions $\pi = (a_1, a_2, \ldots, a_k) \in \Pi[n]$ let

$$f(\pi) := f(a_1)f(a_2) \cdots f(a_k).$$

With this we define the *f-signed partition numbers*

$$\mathfrak{p}(n, f) = \sum_{\pi \in \Pi[n]} f(\pi).$$

We discuss asymptotic formulae for (n, χ_p), where $\chi_p(n)$ is the Legendre symbol $(\frac{n}{p})$ for the odd prime p. Special attention is paid to $\mathfrak{p}(n, \chi_5)$, and a formula supporting the recent discovery that $\mathfrak{p}(n, \chi_5) = 0$ for all $n \equiv 2 \pmod{10}$ is discussed. We give an overview of the q-series methods used to prove this 10-periodic vanishing.

In addition, a general result on exponential sums with multiplicative coefficients, built on work of Montgomery and Vaughan, is presented. We also discuss asymptotic properties of $\mathfrak{p}(n, \mu)$ and $\mathfrak{p}(n, \lambda)$, where μ and λ are the Möbius-μ and Liouville-λ functions, respectively.