2. $\sum_{1}^{\infty} \frac{a^n}{1\cdot 3\cdot 5\cdots(2n-1)} \cos (1\cdot 3\cdot 5\cdots 2n-1)\pi x$

$$|a| > 1 + \tfrac{3}{2}\pi \quad \text{(Dini).}$$

3. $\sum_{1}^{\infty} \frac{a^n}{1\cdot 5\cdot 9\cdots(4n+1)} \sin (1\cdot 5\cdot 9\cdots(4n+1))\pi x$

$$a > 1 + \tfrac{3}{2}\pi \quad \text{(Dini).}$$

4. If $\sum_{1}^{\infty} \frac{a_i}{10^i}$ denote any non-terminating decimal,

$$\sum_{0}^{\infty} \frac{a_i}{10^i} \begin{matrix}\sin\\ \cos\end{matrix} (10^{3i} x\pi).$$

5. $\sum_{0}^{\infty} \frac{1}{a^n} \begin{matrix}\sin\\ \cos\end{matrix} (n! a^n \pi x)$, where $|a|$ is an integer > 1.

6. $x \sum_{0}^{\infty} a^n \sin b^n x\pi$, $|a| < 1$, $|ab| > 1 + \tfrac{3}{2}\pi$, has a derivative for $x = 0$ but for no other value of x.

7. $\sum_{0}^{\infty} \frac{x^n}{n!} \begin{matrix}\sin\\ \cos\end{matrix} (n! \pi x)$ has derivatives *between* -1 and $+1$ and no derivatives if $|x| > 1 + \tfrac{3}{2}\pi$.

Lerch gives a theorem* which shows that this last function has no derivatives for any *rational* points for which $|x| \geqq 1$. It is easy to show that it can have a finite derivative for no point $|x| > 1 + \frac{\pi}{2}$.

A HALF CENTURY OF FRENCH MATHEMATICS.

Les Sciences Mathématiques en France depuis un Demi-Siècle. Par Emile Picard. Paris, Gauthier-Villars, 1917. 24 pp.

In the first decades of the last century the home of the scientific spirit was in France. Paris was the capital of the Republic of exact truth. Interest in scientific discovery and creation was widespread among her people. The spirit of literature flourished alongside the spirit of exact researches

* Lerch, *Crelle's Journal*, vol. 103, p. 130 ("Ueber die Nichtdifferentiierbarkeit gewisser Funktionen").