- $\Delta_1, \Delta_2 < 0 \Rightarrow$ min. loc.
- $\Delta_1 < 0$
  $\Delta_2 > 0 \Rightarrow$ max loc
- $\Delta_1, \Delta_2 \geq 0$
  min. cu unul nul $\Big\} \Rightarrow$ nu știm
- $\Delta_1 \leq 0$
  $\Delta_2 \geq 0$
  cu min unul 0 $\Big\} \Rightarrow$ nu știm
- altă sit. nu este pct. de extr. local

PCT. LOCALE

1) că e cont.
2) că e dif. (fac. der. parțiale + m. desch.)
3) rez. sist. de ec. cu der. parț.
4) dif de ord 2 (mai deriv. o dată)
5) hessiana pe baza 3+4
6) pt. pct. resp. cmp. $f(x,y)$ cu $f(p_1,p_2)$

$\Gamma : (0,+\infty) \to \mathbb{R}$

$$\Gamma(p) = \int_0^{+\infty} x^{p-1} \cdot e^{-x}$$

$$\Gamma(1) = 1$$

$$\Gamma\left(\tfrac{1}{2}\right) = \sqrt{\pi}$$

$$\Gamma(p+1) = p \cdot \Gamma(p) \quad \forall p > 0$$

$$\Gamma(n) = (n-1)! \quad \forall n \in \mathbb{N}^*$$

$$\Gamma(p) \cdot \Gamma(1-p) = \frac{\pi}{\sin(p\pi)}$$

$\beta : (0,+\infty) \times (0,\infty) \to \mathbb{R}$

$$\beta(p,q) = \int_{0+0}^{1-0} x^{p-1} \cdot (1-x)^{q-1} \, dx$$

$$\beta(p,q) = 2 \cdot \int_{0+0}^{\frac{\pi}{2}-0} \sin^{2p-1} x \cdot \cos^{2q-1} x \, dx$$

$$\beta(p,q) = \int_{0+0}^{+\infty} \frac{x^{p-1}}{(1+x)^{p+q}} \, dx$$

$$\beta(p,q) = \frac{\Gamma(p) \cdot \Gamma(q)}{\Gamma(p+q)}$$

SERII DE PUTERI:

1) $\sum_{n \geq 0} x^n = \frac{1}{1-x} \quad \forall x \in (-1,1)$
2) $\sum_{n \geq 0} (-1)^n \cdot x^n = \frac{1}{1+x} \quad \forall x \in (-1,1)$
3) $\sum_{n \geq 0} \frac{x^n}{n!} = e^x \quad \forall x \in \mathbb{R}$
4) $\sum_{n \geq 0} \frac{(-1)^n \cdot x^{2n}}{(2n)!} = \cos x \quad \forall x \in \mathbb{R}$
5) $\sum_{n \geq 0} \frac{(-1)^n \cdot x^{2n+1}}{(2n+1)!} = \sin x \quad \forall x \in \mathbb{R}$

PAȘI SERII DE PUTERI:

1. aduc $\sum$ la forma $\sum a_n (x-x_0)^n$
2. raza de conv.:
   $R = \dfrac{1}{\lim\limits_{n\to\infty} \left| \frac{a_{n+1}}{a_n} \right|}$ sau
   $R = \dfrac{1}{\lim \sqrt[n]{|a_n|}}$
3. int. de conv. $= (x_0 - R, x_0 + R)$
4. mulțime conv. int $\subseteq A \subseteq [x_0 - R, x_0 + R]$
   $x_0 - R \in$ int dacă e conv.
   $x_0 + R \in$ —"—
5. $f :$ mult. $\to \mathbb{R}$, $f(x) = \sum$
   $\int f(x)\,dx = ?$
   aflăm $f(x)$ adică suma