Esame 15 giugno

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$$z = \frac{(1+i)^4}{(1-i)^4} \frac{i^4}{1+2i}$$

$$\lim_{x \to +\infty} \sqrt{x} \sin\left(\frac{1}{x}\right)$$

$$f(x) = \frac{x^x}{e^x} \qquad f' = ?$$

$$\int_{-1}^{2} \frac{x}{|x|} dx$$

$$\sqrt[4]{e^{i\frac{\pi}{2}}}$$

$$y - 5y + 6 = 0$$

$$\sum_{n=1}^{\infty} (-1)^n \cos\left(\frac{1}{n}\right)$$

$f(x) = \sinh(x^3)$ CONVESSA ?

$$\lim_{x \to 0} \frac{e^x - e^{-2x}}{x}$$

$$\lim_{x \to \infty} \frac{e^x - e^{-2x}}{x}$$

$$\left\{ x \in \mathbb{R} : e^{-\frac{1}{x^2}} < \frac{1}{e} \right\}$$

$$\sum_{n=1}^{\infty} \frac{\cos(n)}{n^3} (x-1)^n$$

$e^{|x|^3}$ derivabile in $x_0 = 0$ ?

$$x^{n+1} = x \cdot x^n$$

$$\int_0^{+\infty} \frac{x}{1+x^2}\,dx$$

$$f(x) = x^2 \ln x \qquad x > 0$$

$$\underline{\underline{z}} = \frac{1}{2} + \frac{i}{2} \qquad \boxed{z^n}_{n \in \mathbb{N}} \qquad \lim_{n \to +\infty} z^n$$

$$\int x \cos(2x)\,dx$$

$$\{ z \in \mathbb{C} : \operatorname{Re} z < 0 \} \cap \{ z \in \mathbb{C} : z^2 + 1 = -3 \}$$

$$e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!} \qquad " \,/ \sqrt{2\pi n} \to 1$$

$$f(x) = x^{\ln x} \qquad f'(x) = ?!$$

$$\lim_{x \to 0^+} x^{(x^2)}$$

$$\{ z \in \mathbb{C} : \quad z^2 - 6z + 3 = 0 \}$$

$$\boxed{z < 0}$$

$$P(z) = \sum_{k=0}^{N} a_k z^k = 0$$

$$\int_{e^3}^{e^4} \frac{1}{x \ln x} \, dx$$

$$f(t) = \frac{(1+t)^3}{1+t^3} \qquad t \geq 0$$

Ammette massimo?

$$f(x) = \frac{x^4}{x^6 + \sin^2(x)} \qquad (x > 0)$$

$$A = \{ y = x^3 - x^2 \text{ con } x \in [0, 2[ \}$$

$$y''(x) + y(x) = 1$$

$$y'(x) + y(x) = e^x$$

$$\sqrt{4 - x^2}$$

$$\lim_{x \to +\infty} \frac{e^x + e^{-x}}{x}$$

$$(x + y)^2 \leq c(x^2 + y^2)$$

$$\lim_{x \to 0^+} \frac{\sin(x)}{x + \sqrt{x}}$$

$$\sum_{n=0} \frac{(-1)^n (x-2)^n}{1+n^2}$$

$f(x) = e^{|x|}$ $\quad f'(1) = ?$

$\sqrt[3]{1}$ complesse

$$\int_0^{\pi} \sin^2(x)\,dx$$

$f(x) = x^2 + \frac{\sin(x)}{x}$ $\quad x > 0$

$\exists M > 0$ $f$ È CONVESSA PER $x > M$

$z \cdot \frac{\bar{z} + 1}{z^2} = 1$

$f(x) = \sin(x)^{\cos(x)}$

$f'(\pi/2) = ?$