How to Pronounce Words in Mathematics. Part 1

by

Bellaouar Djamel

bellaouardj@yahoo.fr

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November 08 th 2015

Write the following in full form

$$f(x, y) = x^2 + y^2 - 2x - 6y + 14.$$

$$x_n \underset{n \to \infty}{\longrightarrow} 0$$

$$\left\| \frac{A^k}{k!} \right\| \leq \frac{\|A\|^k}{k!}$$

$$\left| \sum_{k=1}^{n} x_k \right| \leq \sum_{k=1}^{n} |x_k|.$$

$$|ab| = |a| \cdot |b|.$$

$$A \neq \emptyset \qquad p \notin R.$$

$$a^{n+1} - b^{n+1} = (a-b) \cdot \sum_{k=0}^{n} a^k b^{n-k}, \quad n = 1, 2, \ldots.$$

$$ax^2 + 2hxy + by^2 = 0 \quad ....(*)$$

$$\lim_{x \to 0} \frac{f''(x)}{F''(x)} = \lim_{x \to 0} \frac{-e^x}{4} = -\frac{1}{4}.$$

$$r = \sqrt{x^2 + y^2}$$

$$\lim_{x \to a} f(g(x)) = f(g(a))$$

Evaluate $\lim_{x \to 1} \arcsin\left(\dfrac{1 - \sqrt{x}}{1 - x}\right)$.

$$\lim_{x \to \pi} \frac{\sin x}{2 + \cos x} = \lim_{x \to \pi} f(x) = f(\pi) = \frac{\sin \pi}{2 + \cos \pi} = \frac{0}{2 - 1} = 0$$

$$A \sim B \Longrightarrow e^A \sim e^B$$

$$\|(I - T)^{-1}\| \leq \frac{1}{1 - \|T\|}.$$

$$|gf| = gf \text{ and } \left(\frac{|g|}{\|g\|_q}\right)^q = \left(\frac{|f|}{\|f\|_p}\right)^p \text{ a.e.}$$

$$A = \begin{pmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{pmatrix}$$

$$A^t A = AA^t = I_n$$

$$A^t = A^{-1}$$

$$\|Ax\| = \|x\| ; \ \forall \ x \in \mathbb{R}^n.$$

$$(Ax)^t (Ay) = x^t y \ ; \ \forall \ x, y \in \mathbb{R}^n.$$

$$\mathbb{M}_n(\mathbb{R}) = S_n(\mathbb{R}) \oplus A_n(\mathbb{R})$$

$$\begin{aligned} \|x\|_1 &= \sum_{i=1}^{n} |x_i|, \quad \|x\|_2 = \left(\sum_{i=1}^{n} |x_i|^2 \right)^{\frac{1}{2}}, \\ \|x\|_\infty &= \max_{1 \le i \le n} |x_i|. \end{aligned}$$

$$\varphi(p^r) = p^r - p^{r-1} = p^r \left(1 - \frac{1}{p}\right)$$

$$\varphi(m) = m \prod_{p|m} \left(1 - \frac{1}{p}\right)$$

$$\zeta(2) = \sum_{n=1}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6},$$

$$\sigma(n) = \sum_{k|n} k.$$

$$\lim_{x \to \infty} \pi(x) = \infty.$$

$$\mathcal{N}(R) \subseteq \bigcap_{I \in \operatorname{Spec}(R)} I.$$

$$D(x^{-1}) = -\frac{D(x)}{x^2}.$$

$$f(t)g(t) = \sum_{i=0}^{m} \sum_{j=0}^{n} a_i t^i b_j t^j = \sum_{k=0}^{m+n} \sum_{i+j=k} a_i b_j t^k,$$

$$\binom{n}{k} = \frac{n!}{k!\,(n-k)!}$$

$$(\forall\, x, y \in F) \quad x < y \iff f(x) < f(y).$$

$$p \in \overline{R}$$

$$B + B' = \{x \in R \mid x \geq p + q\}$$

$$\inf_n x_n \leq \underline{\lim}\, x_n \leq \overline{\lim}\, x_n \leq \sup_n x_n.$$

$$\frac{d}{dx}[f(x) + g(x)] = \frac{d}{dx}f(x) + \frac{d}{dx}g(x)$$

$$F'(x) = \lim_{h \to 0} \frac{F(x + h) - F(x)}{h}$$

Evaluate $\lim_{x \to \pi} \dfrac{\sin x}{2 + \cos x}$.

$$f(x_1) \neq f(x_2) \qquad \text{whenever } x_1 \neq x_2$$

$$f(x) = \sum_{n=1}^{\infty} \frac{x^n}{n^2}$$

$$\cos\theta = \frac{r_2^4}{r_1^4}$$

$$y = \frac{x^{3/4}\sqrt{x^2 + 1}}{(3x + 2)^5}.$$

$$\iiint_E f(x, y, z)\, dV = \iint_D \left[\int_{u_1(y, z)}^{u_2(y, z)} f(x, y, z)\, dx \right] dA$$

$$\iiint_E \sqrt{x^2 + z^2}\, dV = \int_{-2}^{2} \int_{x^2}^{4} \int_{-\sqrt{y-x^2}}^{\sqrt{y-x^2}} \sqrt{x^2 + z^2}\, dz\, dy\, dx$$

$$\iint_R \frac{x + 2y}{\cos(x - y)}\, dA,$$

$$D = \begin{vmatrix} f_{xx} & f_{xy} \\ f_{yx} & f_{yy} \end{vmatrix} = f_{xx}f_{yy} - (f_{xy})^2$$

$$f(x, y) = x^2 + y^2 + x^2y + 4,$$
$$D = \{(x, y) \mid |x| \leqslant 1, |y| \leqslant 1\}$$

$$z = \rho \cos \phi \qquad r = \rho \sin \phi$$

$$x = \rho \sin \phi \cos \theta \qquad y = \rho \sin \phi \sin \theta \qquad z = \rho \cos \phi$$

$$\cos\phi = \frac{z}{\rho} = \frac{-2}{4} = -\frac{1}{2} \qquad \phi = \frac{2\pi}{3}$$

$$\cos\theta = \frac{x}{\rho\sin\phi} = 0 \qquad \theta = \frac{\pi}{2}$$

$$f'(3) = -\frac{3}{\sqrt{25 - 3^2}} = -\frac{3}{4}$$

$$y' = \frac{y^2 \sin x + \cos(x + y)}{2y \cos x - \cos(x + y)}$$

$$\frac{d}{dx}(\sin^{-1} x) = \frac{1}{\sqrt{1 - x^2}}$$

$$M = \underbrace{\frac{1}{2}\left(M - M^t\right)}_{A} + \underbrace{\frac{1}{2}\left(M + M^t\right)}_{B}$$

$$x^3 + x^2y + 4y^2 = 6$$

$$x^2y + xy^2 = 3x$$

$$\sqrt{xy} = 1 + x^2y$$

$$4 \cos x \sin y = 1$$

$$\alpha_0 A^m + \alpha_1 A^{m-1} + \ldots + \alpha_m I$$

$$\frac{x^2}{16} - \frac{y^2}{9} = 1, \quad \left(-5, \tfrac{9}{4}\right) \quad \text{(hyperbola)}$$

$$\frac{x^2}{9} + \frac{y^2}{36} = 1, \quad \left(-1, 4\sqrt{2}\right) \quad \text{(ellipse)}$$

$$\|S - S_n\|_\infty \to 0 \text{ as } n \to \infty.$$

$$
\begin{aligned}
\lambda \langle x, x \rangle &= \langle \lambda x, x \rangle \\
&= \langle Ax, x \rangle = (Ax)^t \overline{x} \\
&= x^t A^t \overline{x} = x^t \left(\left(\overline{A} \right)^t \right)^t \overline{x} \\
&= x^t \overline{A} \overline{x} = x^t \overline{Ax} \\
&= \langle x, Ax \rangle = \langle x, \lambda x \rangle = \overline{\lambda} \langle x, x \rangle
\end{aligned}
$$

$$A^{-1} = A^*$$

$\Diamond)\ \ \langle x, x\rangle \geq 0 \text{ et } \langle x, x\rangle = 0 \Longleftrightarrow x = 0$

$\Diamond)\ \ \langle x, y\rangle = \langle y, x\rangle\ \ \forall\ x, y \in E$

$\Diamond)\ \ \langle \lambda x, y\rangle = \lambda \langle x, y\rangle\ \ \forall\ x, y \in E \text{ et } \forall\ \lambda \in \mathbb{R}$

$\Diamond)\ \ \langle x, y + z\rangle = \langle x, y\rangle + \langle y, z\rangle\ \ \forall\ x, y, z \in E$

$$cA = \{cx \mid x \in A\}.$$

$$n \leq x < n + 1.$$

$$(n+1)! = n! \cdot (n+1),\ n = 0,\ 1,\ 2,\ \ldots$$

$$(a+b)^n = \sum_{k=0}^{n} \binom{n}{k} a^k b^{n-k}.$$

$$\bigcap_{n=1}^{\infty} [a_n, b_n] \neq \emptyset.$$

$$-|x| \leq x \leq |x|.$$

$$u_{n_1}, u_{n_2}, u_{n_3}, \cdots$$

$$\frac{a - p^n}{(p+1)^n - p^n}.$$

$$\left\| \frac{e^{xA} - I}{x} - A \right\| \leq \frac{e^{\|xA\|} - 1 - \|xA\|}{|x|} = \left(\frac{e^{|x|.\|A\|} - 1}{|x|} - \|A\| \right) \longrightarrow 0$$

$$a > 1 \iff a^r > 1$$

$$\sqrt[n]{a}$$

$$\left(\frac{1}{p^n}\right) < \frac{1}{a}$$

$$D(E) = \{x | \ \|x\| \leq 1\},$$

$$\begin{aligned} e^A &= I_n + A + \frac{A^2}{2!} + \frac{A^3}{3!} + \ldots + \frac{A^n}{n!} + \ldots \\ &= \sum_{k=0}^{\infty} \frac{A^k}{k!}. \end{aligned}$$

$$\|a + b\|_p \leq \|a\|_p + \|b\|_p.$$

$$\|f\|_p = \left(\int_a^b |f(x)|^p dx\right)^{1/p} < \infty.$$

$$\sup_{t\in[a,b]} |x_n(t) - x(t)| \to 0$$

$$\lim_{n\to\infty} \|\sum_1^n \alpha_i e_i\| = \sqrt{\sum |\alpha_i|^2}$$

$$F^{-1}(C) = f^{-1}(C) \cup g^{-1}(C)$$

$$\overline{f^{-1}(B)} \subset f^{-1}(\bar{B}).$$

$$\lim_{n\to\infty} f(x_n) \neq f(x).$$

$$|\rho(x, Y) - \rho(z, Y)| \leq \rho(x, z)$$

$$\sum_{n=1}^{\infty} \|x_n\| < \sum_{n=1}^{\infty} \left(\frac{1}{2}\right)^n = \frac{1}{2}\left(\frac{1}{1-\frac{1}{2}}\right) = 1,$$

$$f(x) = e_x(f) = \int_0^1 f(y)\overline{G(x, y)}dy \text{ for all } f \in \mathcal{M}.$$

$$\|f\|_\infty \leq A \|f\|_p \leq A \|f\|_2$$

$$\left\|\sum_{n=1}^{N} c_n f_n\right\|_\infty^2 \leq B^2 \sum_{n=1}^{N} |c_n|^2 \leq B^2 |c|^2$$

$$\sum_{n=1}^{\infty} \sup_{x \in E^c} |f_n(x)| \leq \sum_{n=1}^{\infty} M_n < \infty$$

$$\begin{aligned} E_\lambda &= \{x \in \mathbb{R}^n \ ; \ Ax = \lambda x\} \\ &= \ker(A - \lambda I). \end{aligned}$$

$$(B^t = -B)$$

$$\lim_{t \longrightarrow 0} \frac{e^{At} - I}{t} = A.$$

P

- [pəˈræmɪtə^r]
- [pəˈtɪkjʊlə^r]
- [plʌs]
- [ˈpəʊlə^r]
- [ˌpɒlɪˈnəʊmɪəl]
- [ˈpaʊə^r]
- [ˈpriːvɪəs]
- [praɪm]

- [ˈprɪmɪtɪv]
- [ˈprɪnsəpl]
- [ˌprɒbəˈbɪlɪtɪ]
- [ˈprɒbləm]
- [ˈprɒdʌkt]
- [pruːf]
- [ˈprɒpətɪ]
- [ˌprɒpəˈzɪʃən]
- [pruːv]

Q

- [kwɒˈdrætɪk]
- [ˈkwɒdrətʃəʳ]
- [ˈkwɒntɪtɪ]
- [ˈkweɪzaɪ]
- [ˈkwestʃən]
- [ˈkwəʊʃənt]

- [ˈreɪdɪəs]
- [reɪndʒ]
- [ræŋk]
- [ˈræʃənl]
- [rɪəl]
- [rɪˈdʌkʃən]
- [ˈrefrəns]
- [rɪˈfleksɪv]

- [ˈregjʊləʳ]
- [rɪˈmɑːk]
- [ˌreprɪzenˈteɪʃən]
- [ˈrezɪdjuː]
- [rɪˈsɪprəkəl]
- [rɪˈzɒlv]
- [rest],
- [rɪˈzʌlt]
- [rɪŋ]
- [ruːt]
- [rəʊ]
- [ruːl]

[sed],
['sɑːmpl],
['skeɪlər]
['sekʃən],
[self],
['semɪ],
['sepərəbl],

- [ˌsepəˈreɪʃən]
- [ˈsiːkwəns]
- [ˈsɪərɪz]
- [set]
- [ˈsetɪŋ]
- [ˈsevrəl]
- [ʃəʊ]
- [saɪn]
- [ˈsʌbsɪkwənt]
- [ˈsɪmɪlə^{r}]

['sɪmɪlәlɪ],
[,sɪmplɪfɪ'keɪʃәn],
[,sɪmәl'teɪnɪәs],
[saɪn],
[sә'luːʃәn [sʌm]
[speɪs],

- [ˈspeʃəl]
- [ˈspektrəl],
- [ˈspektəʳ],
- [skwɛəʳ],
- [ˈstændəd],
- [step],
- [ˈstrɪktlɪ],

- [strɒŋ]
- [ˈstrʌktʃə(r)]
- [ˈstʌdɪ]
- [sʌb], [ˈsʌb,set]
- [ˈsʌb, speɪs]
- [,sʌbstɪˈtjuːʃən]
- [səkˈsesɪv]

- [səˈfɪʃənt]
- [sʌˈmeɪʃən]
- [sʌp]
- [sɜːˈdʒektɪv]
- [sɪˈmetrɪk]
- [sɪˈmetrɪkəlɪ]
- [ˈsɪmɪtrɪ]
- [ˈsɪstəm]

T

- [ˈteɪbl],
- [tiːˈdiː]
- [tekˈniːk]
- [ˈθɪərəm]
- [ˈθɪərɪ]

['ðɛəfɔːʳ]
[taɪmz]
[ˌtɒpə'lɒdʒɪk]
[ˌtɒpə'lɒdʒɪkəl]
[tə'pɒlədʒɪ]
[treɪs]
[ˌtrænsen'dentl]

- [ˈtrænzɪtɪv]
- [trænsˈpəʊz]
- [ˈtraɪæŋgl]
- [traɪˈæŋgjʊləʳ]
- [ˌtraɪdɪˈmenʃənl]
- [ˌtrɪgənəˈmetrɪkəl]
- [ˈtrɪvɪəl]
- [twaɪs]