MathML Browser Test (Presentation Markup)

Safari -- 10/02/2012 -- iOS 6.0 w/native fonts

This is an HTML5 using MathML document.
Click on a formula/equation to see the source code that generated it.
If you are having problems viewing this document, try viewing this older version (XHTML 1.1 plus MathML 2.0).

Formula	Image of TeX rendering (MiKTeX 2.9)	Image of MathML rendering (Firefox 4.0 with STIX Fonts)	MathML rendering (by this browser)
Axiom of power set	$\forall A\, \exists P\, \forall B\, [B \in P \iff \forall C\, (C \in B \Rightarrow C \in A)]$	$\forall A\, \exists P\, \forall B\, [B \in P \iff \forall C\, (C \in B \Rightarrow C \in A)]$	$\forall A \exists P \forall B [B \in P □ \forall C (C \in B$
De Morgan's law	**Logic:** $\neg(p \wedge q) \iff (\neg p) \vee (\neg q)$ **Boolean algebra:** $\overline{\bigcup_{i=1}^{n} A_i} = \bigcap_{i=1}^{n} \overline{A_i}$	Logic: $\neg(p \wedge q) \iff (\neg p) \vee (\neg q)$ Boolean algebra: $\overline{\bigcup_{i=1}^{n} A_i} = \bigcap_{i=1}^{n} \overline{A_i}$	Logic: $\neg(p \wedge q) □ (\neg p) \vee$ Boolean algebra: $\bigcup_{i=1}^{n} A_i =$
Quadratic Formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Binomial Coefficient	$\mathbf{C}(n,k) = \mathbf{C}_k^n = {}_n\mathbf{C}_k = \binom{n}{k} = \frac{n!}{k!\,(n-k)!}$	$C(n,k) = C_k^n = {}_nC_k = \binom{n}{k} = \frac{n!}{k!\,(n-k)!}$	$C(n,k) = C_k^n = C\ k\ n = \binom{n}{k} = \frac{}{k!}$
Sophomore's dream	$\int_0^1 x^x \, \mathrm{d}x = \sum_{n=1}^{\infty} (-1)^{n+1} n^{-n}$	$\int_0^1 x^x \, \mathrm{d}x = \sum_{n=1}^{\infty} (-1)^{n+1} n^{-n}$	$\int_0^1 x^x dx = \sum_{n=1}^{\infty} (-1)^{n+1} n$
Divergence	$\nabla \cdot \vec{v} = \frac{\partial v_x}{\partial x} + \frac{\partial v_y}{\partial y} + \frac{\partial v_z}{\partial z}$	$\nabla \cdot \vec{v} = \frac{\partial v_x}{\partial x} + \frac{\partial v_y}{\partial y} + \frac{\partial v_z}{\partial z}$	$\nabla \cdot \vec{v} = \frac{\partial v_x}{\partial x} + \frac{\partial v_y}{\partial y} + \frac{\partial v}{\partial z}$
Complex number	$c = \overbrace{\underbrace{a}_{\text{real}} + \underbrace{bi}_{\text{imaginary}}}^{\text{complex number}}$	$c = \overbrace{\underbrace{a}_{\text{real}} + \underbrace{bi}_{\text{imaginary}}}^{\text{complex number}}$	complex number $c = a + bi$ real imaginary
Moore determinant	$M = \begin{bmatrix} \alpha_1 & \alpha_1^q & \cdots & \alpha_1^{q^{n-1}} \\ \alpha_2 & \alpha_2^q & \cdots & \alpha_2^{q^{n-1}} \\ \vdots & \vdots & \ddots & \vdots \\ \alpha_m & \alpha_m^q & \cdots & \alpha_m^{q^{n-1}} \end{bmatrix}$	$M = \begin{bmatrix} \alpha_1 & \alpha_1^q & \cdots & \alpha_1^{q^{n-1}} \\ \alpha_2 & \alpha_2^q & \cdots & \alpha_2^{q^{n-1}} \\ \vdots & \vdots & \ddots & \vdots \\ \alpha_m & \alpha_m^q & \cdots & \alpha_m^{q^{n-1}} \end{bmatrix}$	$M = \begin{bmatrix} \alpha_1 & \alpha_1^q & \cdots & \alpha_1^{q^{n-1}} \\ \alpha_2 & \alpha_2^q & \cdots & \alpha_2^{q^{n-1}} \\ \vdots & \vdots & \ddots & \vdots \\ \alpha_m & \alpha_m^q & \cdots & \alpha_m^{q^{n-1}} \end{bmatrix}$
Sphere volume	Spherical coordinates derivation of the volume of a sphere $(\frac{4}{3}\pi R^3)$. The formula S for a sphere of radius R in spherical coordinates is: $S = \{0 \le \phi \le 2\pi,\ 0 \le \theta \le \pi,\ 0 \le \rho \le R\}$ $\text{Volume} = \iiint_S \rho^2 \sin\theta \, \mathrm{d}\rho \, \mathrm{d}\theta \, \mathrm{d}\phi = \int_0^{2\pi} \mathrm{d}\phi \int_0^{\pi} \sin\theta \, \mathrm{d}\theta \int_0^R \rho^2 \mathrm{d}\rho = \phi \Big\vert_0^{2\pi} (-\cos\theta) \Big\vert_0^{\pi} \frac{1}{3}\rho^3 \Big\vert_0^R = 2\pi \times 2 \times \frac{1}{3} R^3 = \frac{4}{3}\pi R^3$	Spherical coordinates derivation of the volume of a sphere $(\frac{4}{3}\pi R^3)$. The formula S for a sphere of radius R in spherical coordinates is: $S = \{0 \le \phi \le 2\pi,\ 0 \le \theta \le \pi,\ 0 \le \rho \le R\}$ $\text{Volume} = \iiint_S \rho^2 \sin\theta \, \mathrm{d}\rho \, \mathrm{d}\theta \, \mathrm{d}\phi = \int_0^{2\pi} \mathrm{d}\phi \int_0^{\pi} \sin\theta \, \mathrm{d}\theta \int_0^R \rho^2 \mathrm{d}\rho = \phi \Big\vert_0^{2\pi} (-\cos\theta) \Big\vert_0^{\pi} \frac{1}{3}\rho^3 \Big\vert_0^R = 2\pi \times 2 \times \frac{1}{3} R^3 = \frac{4}{3}\pi R^3$	Spherical coordinates derivation of the volume of The formula S for a sphere of radius R in spherical $S = \{0 \le \varphi \le 2\pi, 0 \le \theta \le \pi, 0 \le \rho \le R\}$ $\text{Volume} = \iiint_S \rho^2 \sin\theta\, d\rho\, d\theta\, d\varphi = \int_0^{2\pi} d\varphi \int_0^{\pi} \sin\theta\, d\theta \int_0^R \rho^2 = \varphi \Big\vert_0^{2\pi} (-\cos\theta) \Big\vert_0^{\pi} \frac{1}{3}\rho = 2\pi \times 2 \times \frac{1}{3} R^3 = \frac{4}{3}\pi R^3$
Schwinger-Dyson equation	$\left\langle \psi \middle\vert \mathcal{T}\left\{\frac{\delta}{\delta\phi}F[\phi]\right\} \middle\vert \psi \right\rangle = -\mathrm{i} \left\langle \psi \middle\vert \mathcal{T}\left\{F[\phi]\frac{\delta}{\delta\phi}S[\phi]\right\} \middle\vert \psi \right\rangle$	$\left\langle \psi \middle\vert \mathcal{T}\left\{\frac{\delta}{\delta\phi}F[\phi]\right\} \middle\vert \psi \right\rangle = -\mathrm{i} \left\langle \psi \middle\vert \mathcal{T}\left\{F[\phi]\frac{\delta}{\delta\phi}S[\phi]\right\} \middle\vert \psi \right\rangle$	$□ \psi \Big\vert □ \left\{ \frac{\delta}{\delta\varphi} F[\varphi] \right\} \Big\vert \psi □ = -i □ \psi \Big\vert □ \{ F[$
Differentiable Manifold (tangent vector)	$\gamma_1 \equiv \gamma_2 \iff \begin{cases} \gamma_1(0) = \gamma_2(0) = p, \text{ and} \\ \frac{d}{dt}\phi \circ \gamma_1(t)\Big\vert_{t=0} = \frac{d}{dt}\phi \circ \gamma_2(t)\Big\vert_{t=0} \end{cases}$	$\gamma_1 \equiv \gamma_2 \iff \begin{cases} \gamma_1(0) = \gamma_2(0) = p, \text{ and} \\ \frac{\mathrm{d}}{\mathrm{d}t}\phi \circ \gamma_1(t)\Big\vert_{t=0} = \frac{\mathrm{d}}{\mathrm{d}t}\phi \circ \gamma_2(t)\Big\vert_{t=0} \end{cases}$	$\gamma_1 \equiv \gamma_2 □ \begin{cases} \gamma_1\ (0) = \gamma_2\ (0) = p \text{, and} \\ \left(\frac{d}{dt}\varphi \circ \gamma_1(t)\right) \Big\vert_{t=0} = \left(\frac{d}{dt}\varphi\right. \end{cases}$
Cichoń's Diagram	$\begin{array}{ccccccccc} & & \mathrm{cov}(\mathcal{L}) & \longrightarrow & \mathrm{non}(\mathcal{K}) & \longrightarrow & \mathrm{cof}(\mathcal{K}) & \longrightarrow & \mathrm{cof}(\mathcal{L}) & \longrightarrow & 2^{\aleph_0} \\ & & \uparrow & & \uparrow & & \uparrow & & \uparrow \\ & & & & \mathfrak{b} & \longrightarrow & \mathfrak{d} \\ & & & & \uparrow & & \uparrow \\ \aleph_1 & \longrightarrow & \mathrm{add}(\mathcal{L}) & \longrightarrow & \mathrm{add}(\mathcal{K}) & \longrightarrow & \mathrm{cov}(\mathcal{K}) & \longrightarrow & \mathrm{non}(\mathcal{L}) \end{array}$	$\begin{array}{ccccccccc} & & \mathrm{cov}(\mathcal{L}) & \longrightarrow & \mathrm{non}(\mathcal{K}) & \longrightarrow & \mathrm{cof}(\mathcal{K}) & \longrightarrow & \mathrm{cof}(\mathcal{L}) & \longrightarrow & 2^{\aleph_0} \\ & & \uparrow & & \uparrow & & \uparrow & & \uparrow \\ & & & & \mathfrak{b} & \longrightarrow & \mathfrak{d} \\ & & & & \uparrow & & \uparrow \\ \aleph_1 & \longrightarrow & \mathrm{add}(\mathcal{L}) & \longrightarrow & \mathrm{add}(\mathcal{K}) & \longrightarrow & \mathrm{cov}(\mathcal{K}) & \longrightarrow & \mathrm{non}(\mathcal{L}) \end{array}$	$\mathrm{cov}\ (\mathcal{L})\ □\ \mathrm{non}\ (□)\ □\ \mathrm{cof}\ (□)\ □$ $\aleph_1\ □\ \mathrm{add}\ (\mathcal{L})\ □\ \mathrm{add}\ (□)\ □\ \mathrm{cov}\ (□$

multiscripts & greek alphabet	${}^{\kappa}_{\iota}\mathfrak{C}^{\lambda}_{\mu}\ {}^{\zeta}_{\epsilon}\mathfrak{B}^{\eta}_{\theta}\ {}^{\beta}_{\alpha}\mathfrak{A}^{\gamma}_{\delta} \prod {}^{\xi}_{\nu}\mathfrak{D}^{o}_{\pi}\ {}^{\sigma}_{\rho}\mathfrak{E}^{\tau}_{\upsilon}\ {}^{\chi}_{\phi}\mathfrak{F}^{\psi}_{\omega}$	${}^{\kappa}_{\iota}\mathfrak{C}^{\lambda}_{\mu}\ {}^{\zeta}_{\varepsilon}\mathfrak{B}^{\eta}_{\theta}\ {}^{\beta}_{\alpha}\mathfrak{A}^{\gamma}_{\delta} \prod {}^{\xi}_{\nu}\mathfrak{D}^{o}_{\pi}\ {}^{\sigma}_{\rho}\mathfrak{E}^{\tau}_{\upsilon}\ {}^{\chi}_{\phi}\mathfrak{F}^{\psi}_{\omega}$	$\prod$ □ $\upsilon\ \tau\ \rho\ \sigma$ □ $\pi\ o\ \nu\ \xi$ □ $\mathfrak{C}\ \mu\ \lambda\ \iota\ \kappa$ □ $\omega\ \psi\ \varphi\ \chi$
nested roots	$\frac{\sqrt{1+\sqrt[3]{2+\sqrt[5]{3+\sqrt[7]{4+\sqrt[11]{5+\sqrt[13]{6+\sqrt[17]{7+\sqrt[19]{A}}}}}}}}}{e^{\pi}}=x'''$	$\frac{\sqrt{1+\sqrt[3]{2+\sqrt[5]{3+\sqrt[7]{4+\sqrt[11]{5+\sqrt[13]{6+\sqrt[17]{7+\sqrt[19]{A}}}}}}}}}{e^{\pi}}=x'''$	$\frac{\sqrt{1+\sqrt[3]{2+\sqrt[5]{3+\sqrt[7]{4+\sqrt[11]{5+\sqrt[13]{6+\sqrt[17]{7+}}}}}}}}{e^{\pi}}$
nested matrices	$\begin{pmatrix} \begin{pmatrix} a_1 & a_2 & a_3 & a_4 \\ a_5 & a_6 & a_7 & a_8 \end{pmatrix} & \begin{pmatrix} b_1 \\ b_2 \\ b_3 \\ b_4 \end{pmatrix} \\ 0 \quad \begin{pmatrix} c_1 & c_2 \\ c_3 & c_4 \end{pmatrix} & \end{pmatrix}$	$\begin{pmatrix} \begin{pmatrix} a_1 & a_2 & a_3 & a_4 \\ a_5 & a_6 & a_7 & a_8 \end{pmatrix} & \begin{pmatrix} b_1 \\ b_2 \\ b_3 \\ b_4 \end{pmatrix} \\ 0 \quad \begin{pmatrix} c_1 & c_2 \\ c_3 & c_4 \end{pmatrix} & \end{pmatrix}$	$\begin{pmatrix} \begin{pmatrix} a_1 a_2 a_3 a_4 \\ a_5 a_6 a_7 a_8 \end{pmatrix} & \begin{pmatrix} b_1 \\ b_2 \\ b_3 \\ b_4 \end{pmatrix} \\ 0 \quad \begin{pmatrix} c_1 c_2 \\ c_3 c_4 \end{pmatrix} & \end{pmatrix}$
font sizes	Huge, Large, normalsize, small	scriptlevel : $-3, -2, -1, 0, 1$	scriptlevel : $(-3 , -2 , -1$

NOTES:

I hope this site can be used as a learning aid (tutorial by example) for mathematics in TeX/LaTeX and in coding MathML.
A small sample of many different types of mathematical expressions and equations is shown.
All the examples are complete with the source code available. (Just click on the equation/formula.)

This web page was validated as:

- `HTML5` at The W3C Markup Validation Service
- `CSS level 3` at The W3C CSS Validation Service
- `Section 508` accessibility requirements/guidelines at The HiSoftware Cynthia Says Portal

Lessons Learned Working on MathML with STIX Fonts on Firefox:

When using an `mtable`, the table cell (`mtd`) default vertical padding produces excessive spacing. Setting the top and bottom padding to zero "`0`" fixes this.

When using the `mfenced` tag, the "fences" have no spacing around them.
When using the vertical bar "|" (`|`) as a fence, adding a little spacing around it improves the readability of the result.

Firebug is an add-on to the Firefox browser. It is a great development tool that works well with MathML.

Bugs / Enhancements:

- Firefox: Bug 236963 - (stretchy-in-cells) Stretchy characters don't stretch in mtable cells
- Firefox: Bug 403958 - mroot and msqrt overlines not consistent with right hooks in radical glyphs
- Firefox: Bug 491384 - MathML does not honor columnalign attribute of mtable element
- Firefox: Bug 491668 - MathML elements rendered x & y position available but width and height undefined
- Firefox: Bug 667567 - MathML is not displayed correctly inside link and underline tags

Useful Links: