

Francois MENDZINA ESSOMBA PHY FORMULAE

I present some formulas found for the calculation of phy. Some of these formulas accelerate the calculation of decimals and others are written as a function of e and pi by continuous fractions

Le nombre d'or $\varphi = \frac{1+\sqrt{5}}{2}$

Formule 1

Formule 2

Formule 3

$$196418 \varphi^{-1} - 121393 = \cfrac{1}{\sqrt{1 + 439204 \sqrt{1 + 439204 \sqrt{1 + 439204 \sqrt{1 + 439204 \sqrt{1 + \dots}}}}}}$$

Formule 4

$$9227465 \varphi^{-1} - 5702887 = \cfrac{1}{\sqrt{1 + 20633239 \sqrt{1 + 20633239 \sqrt{1 + 20633239 \sqrt{1 + 20633239 \sqrt{1 + \dots}}}}}}$$

Formule 5

$$165580141 \varphi^{-1} - 102334155 = \cfrac{1}{\sqrt{1 + 370248451 \sqrt{1 + 370248451 \sqrt{1 + 370248451 \sqrt{1 + 370248451 \sqrt{1 + \dots}}}}}}$$

Formule 6

$$\varphi^{-1} = \frac{e^{-\pi}\sqrt{5e^{2\pi}-4}-1}{2} + \frac{e^{-\pi}}{\sqrt{1 + \sqrt{5e^{2\pi}-4 + (5e^{2\pi}-4)\sqrt{5e^{2\pi}-4 + (5e^{2\pi}-4)\sqrt{5e^{2\pi}-4 + (5e^{2\pi}-4)\sqrt{5e^{2\pi}-4 + (5e^{2\pi}-4)\sqrt{5e^{2\pi}-4 + \dots}}}}}}$$

Formule 7

$$\frac{94}{\varphi} = \sqrt{11045 - 4e^{2\pi}} - 47 + \frac{2e^{\frac{(2^{n+2}-1)\pi}{2^{n+1}}}}{\sqrt{\sqrt{\sqrt{\sqrt{(\sqrt{11045 - 4e^{2\pi}} + e^\pi)(\sqrt{11045 - 4e^{2\pi}} + e^{\frac{3\pi}{2}})(\sqrt{11045 - 4e^{2\pi}} + e^{\frac{7\pi}{4}})(\sqrt{11045 - 4e^{2\pi}} + e^{\frac{15\pi}{8}})(\sqrt{11045 - 4e^{2\pi}} + e^{\frac{31\pi}{16}}) \dots (\sqrt{11045 - 4e^{2\pi}} + e^{\frac{(2^{n+1}-1)\pi}{2^n}})}}}}$$

Formule 8

$$\varphi^{-1} = \frac{2e^{\frac{(2^{n+1}-1)\pi}{2^n\sqrt{5}}} + \left(\sqrt{12005 - 4e^{\sqrt{5}}} - 49 \right) \sqrt{\sqrt{\sqrt{\sqrt{\left(\sqrt{12005 - 4e^{\sqrt{5}}} + e^{\frac{2\pi}{\sqrt{5}}} \right) \left(\sqrt{12005 - 4e^{\sqrt{5}}} + e^{\frac{3\pi}{\sqrt{5}}} \right) \left(\sqrt{12005 - 4e^{\sqrt{5}}} + e^{\frac{7\pi}{\sqrt{5}}} \right) \left(\sqrt{12005 - 4e^{\sqrt{5}}} + e^{\frac{15\pi}{\sqrt{5}}} \right) \dots \left(\sqrt{12005 - 4e^{\sqrt{5}}} + e^{\frac{(2^{n-1})\pi}{\sqrt{5}}} \right)}}}}}}{\sqrt{\sqrt{\sqrt{\sqrt{\left(\sqrt{12005 - 4e^{\sqrt{5}}} + e^{\frac{2\pi}{\sqrt{5}}} \right) \left(\sqrt{12005 - 4e^{\sqrt{5}}} + e^{\frac{3\pi}{\sqrt{5}}} \right) \left(\sqrt{12005 - 4e^{\sqrt{5}}} + e^{\frac{7\pi}{\sqrt{5}}} \right) \left(\sqrt{12005 - 4e^{\sqrt{5}}} + e^{\frac{15\pi}{\sqrt{5}}} \right) \dots \left(\sqrt{12005 - 4e^{\sqrt{5}}} + e^{\frac{(2^{n-1})\pi}{\sqrt{5}}} \right)}}}}}}$$