$$\sum_{n=0}^{\infty} \frac{1}{(2n+1)!!} = \sqrt{\frac{e\pi}{2}}\ \operatorname{erf}\left(\frac{1}{\sqrt{2}}\right)$$

$$\int_0^1 \frac{e^{-x^2}}{\sqrt{1-x^2}}\,dx = \frac{\pi I_0\left(\frac{1}{2}\right)}{2\sqrt{e}}$$

$I_n(z)$ is the modified Bessel function of the first kind

$$\lim_{n\to\infty} \sqrt[n]{\frac{2^n n!}{n^n}} = \frac{2}{e}$$

$\csc(x)$ is the cosecant function

$\Gamma(x)$ is the gamma function

$\zeta(s)$ is the Riemann zeta function

$\operatorname{Re}(z)$ is the real part of z

$$\frac{\pi \int_0^{\infty} \frac{t^{x-1}}{\exp(t)+1}\,dt}{\sin(\pi x)} = \pi \times 2^{-x}\left(2^x - 2\right)\zeta(x)\csc(\pi x)\,\Gamma(x) \quad \text{True for } \operatorname{Re}(x) > 0$$

$$\frac{\pi^2}{6} - \sum_{n=1}^{\infty} \frac{\cos(n\pi)}{n^s} = 2^{-s}\left(2^s - 2\right)\zeta(s) + \frac{\pi^2}{6} \quad \text{True for } \operatorname{Re}(s) > 0$$

$$\sum_{n=1}^{\infty} \frac{\mu(n)}{n^s} = \frac{1}{\zeta(s)}$$

$$\lim_{n\to\infty} \left(1 + \frac{1}{n}\right)^n = e$$

$$\int_0^{\infty} \frac{\cos(x)}{1+x^2}\, dx = \frac{\pi}{2e}$$

$$\lim_{n\to\infty} \frac{n^3+n^2}{n^4+n^3+n^2+n+1} = 0$$

$$\exp\left(\frac{1}{2}\sum_{k=1}^{\infty} \log\left(4 \times \frac{k^2}{4k^2-1}\right)\right) = \sqrt{\frac{\pi}{2}}$$

$$\sqrt{2}\left(\sqrt{2}\int_0^{\infty} \frac{\sin(x)}{x}\, dx\right) = \pi$$

$$\int_{-\infty}^{\infty} \exp\left(-\frac{x^2}{2}\right) dx = \sqrt{2\pi}$$

$$\sum_{n=0}^{+\infty} \frac{(-1)^n}{(2n+1)^2(2n+2))} = C + \frac{1}{4}(log(4) - \pi)$$ C is the Catalan's constant

$$\sum_{n=1}^{+\infty} (-1)^{n+1} \frac{\left(\frac{(2n-3)!!}{(2n-2)!!}\right)^2 * \frac{\pi}{2}}{n} = \frac{\Gamma(\frac{1}{4})^2}{2\sqrt{2\pi}} - \frac{2\sqrt{2} * \pi^{\frac{3}{2}}}{\Gamma(\frac{1}{4})^2}$$

With $\Gamma(n) = (n-1)!$

$$\sum_{n=0}^{\infty} \frac{2^{n+1}(n!)^2}{(2n+1)!} = \pi$$

$$-1 + e + \gamma - \mathrm{Ei}(1) = \frac{1}{4 \times 0!} + \frac{1}{9 \times 1!} + \frac{1}{16 \times 2!} + \frac{1}{25 \times 3!} + \cdots$$