$Digits := 30;$

$$30 \tag{1}$$

$$f := \frac{lam \cdot\cdot k \cdot \exp(-lam)}{k!};$$

$$\frac{lam^k \, e^{-lam}}{k!} \tag{2}$$

$$fb := \text{binomial}(N, k) \cdot p \cdot\cdot k \cdot (1 - p) \cdot\cdot (N - k);$$

$$\text{binomial}(N, k) \; p^k \; (1 - p)^{N - k} \tag{3}$$

$$lam := 1.0;$$

$$1.0 \tag{4}$$

$$N := 1000000000000;$$

$$1000000000000 \tag{5}$$

$$p := \frac{lam}{N};$$

$$1.0000000000000000000000000000 \; 10^{-12} \tag{6}$$

for k **from** 0 **to** 10 **by** 1 **do** $k, f, fb, \frac{(f - fb)}{fb}$ **;end do**

0, 0.36787944117144232159552377016 1, 0.36787944117125838187493797235 9, 5.0000000000045833238735545582 10^{-13}

1, 0.36787944117144232159552377016 1, 0.36787944117162626131610959862 0, $-5.0000000000004166675337002477 \; 10^{-13}$

2, 0.18393972058572116079776188508 0, 0.18393972058581313065805479931 0, $-5.0000000000004166947165185323 \; 10^{-13}$

3, 0.061313240195240386932587295027 0, 0.061313240195209730312489600747 5, 5.0000000000145833336275360370 10^{-13}

4, 0.015328310048810096733146823757 0, 0.015328310048771775958024764665 2, 2.5000000000084583300132604678 10^{-12}

5, 0.003065662009762019346629364751 0, 0.003065662009745158205575680670 4, 5.5000000000279583329999517019 10^{-12}

6, 0.000510943668293669891104894125224 0, 0.000510943668288815926256114629157 3, 9.5000000000699583335411956648 10^{-12}

7, 0.000072991952613381413014984875032 0, 0.000072991952612323029702095427830 1, 1.4500000000147458331150318660 10^{-11}

8, 0.000009123994076672676626873109379 0, 0.000009123994076485634748302631462 4, 2.0500000000276458329395105281 10^{-11}

9, 0.000001013777119630297402985901042 0, 0.000001013777119602418532196352016 8, 2.7500000000475958329765374611 10^{-11}

10, 1.013777119630297402985901042 10^{-7}, 1.013777119594308315239524558 10^{-7}, 3.5500000000767958335169797963 10^{-11} **(7)**