

$$1p + 2(1-p) \cdot p + 3(1-p)^2 p + \dots + n(1-p)^{n-1} \cdot p + \dots$$

Geom. řada: $S = 1 + q + q^2 + q^3 + q^4 + \dots$ $|q| < 1$

$$q \cdot S = q + q^2 + q^3 + \dots$$

$$S - qS = 1$$

$$S(1-q) = 1$$

$$S = \frac{1}{1-q}$$

$$p = 1 + 2 + 4 + \dots + 2^{63}$$

$$2p = 2 + \dots + 2^{64}$$

$$p = 2^{64} - 1$$

bře 15-12:00

$$1p + 2(1-p) \cdot p + 3(1-p)^2 p + \dots + n(1-p)^{n-1} \cdot p + \dots$$

$$= p(1 + 2(1-p) + 3(1-p)^2 + \dots)$$

$$\frac{1}{p} = \frac{1}{1-(1-p)} = 1 + (1-p) + (1-p)^2 + (1-p)^3 + \dots$$

$$\frac{1-p}{p} = (1-p) + (1-p)^2 + (1-p)^3 + \dots$$

$$\frac{1-p}{p} = \frac{1-p}{p} \Rightarrow \text{Součet geometrické řady je } \frac{p}{p} = 1$$

bře 15-12:23

$$(1 + x + x^2 + x^3 + \dots)^2 = 1 + 2x + 3x^2 + 4x^3 + \dots$$

$$\frac{1}{(1-x)^2} = \left(\frac{1}{1-x}\right)'$$

$$x := 1-p \quad \frac{1}{p^2} = 1 + 2(1-p) + 3(1-p)^2 + \dots$$

bře 15-12:27

$$1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \frac{1}{7} + \frac{1}{8} + \frac{1}{9} + \dots + \frac{1}{16} + \frac{1}{17} + \dots + \frac{1}{32}$$

$$> \frac{1}{4} + \frac{1}{4} \quad > \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} \quad > \frac{3}{16} \quad > \frac{16}{32}$$

bře 15-12:34

$$l = h = 1: \frac{\binom{20}{1} \binom{60}{0}}{\binom{80}{1}} = \frac{20}{80}$$

$$l = 5: \frac{\binom{20}{3} \binom{60}{2}}{\binom{80}{5}} + 16 \frac{\binom{20}{4} \binom{60}{1}}{\binom{80}{5}} + 200 \frac{\binom{20}{5} \binom{60}{0}}{\binom{80}{5}}$$

bře 15-12:44

$$(-100 - 200 - 400) + 800 = 100$$

$$-100 + 200 = 100$$

bře 15-12:53

$R_A > R_B > R_C$ pro 2 hráčů
 $R_A < R_B < R_C$ pro 3 hráčů

$$R_A \text{ vyhraje: } 0,56 \cdot 0,51 \approx 0,28$$

$$R_C \text{ vyhraje: } 0,49 \cdot 0,78 \approx 0,39$$

$$R_B \text{ vyhraje: } \approx 0,33$$

bře 15-13:34