

【Review article】

## $\zeta(3)$

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### ***【Abstract】***

$\zeta(3)$  was obtained by another method.

$$\sum_{k=1}^{\infty} \frac{1}{k^2 \times 2^{k-1}} + \log^2(2)$$

$$\sum_{k=1}^{\infty} \frac{1}{k^2 \times 2^{k-1}} + (\log 2)^2 = \pi^2/6 = \zeta(2)$$

$$\sum_{k=1}^{\infty} \frac{1}{k^3 \times 2^{k-1}} + \log^3(2)$$

$$\sum_{k=1}^{\infty} \frac{1}{k^3 \times 2^{k-1}} + (\log 2)^3 \approx 1.40745$$

$$\frac{1}{12} (21 \zeta(3) + 4 \log^3(2) - \pi^2 \log(4)) + \log^3(2) \approx 1.40745$$

$$\zeta(3) = 1.202056903160.....$$

### ***【discussion】***

$$\sum_{k=1}^{\infty} \frac{1}{k^2 \times 2^{k-1}} + \log^2(2)$$

$$\sum_{k=1}^{\infty} \frac{1}{k^2 \times 2^{k-1}} + (\log 2)^2 = \pi^2/6 = \zeta(2)$$

$$\sum_{k=1}^{\infty} \frac{1}{k^3 \times 2^{k-1}} + \log^3(2)$$

$$\sum_{k=1}^{\infty} \frac{1}{k^3 \times 2^{k-1}} + (\log 2)^3 \approx 1.40745$$

$$\frac{1}{12} (21 \zeta(3) + 4 \log^3(2) - \pi^2 \log(4)) + \log^3(2) \approx 1.40745$$

$$\begin{aligned} (1/12) * \{ (21 \zeta(3) + 4 * \log^3(2) - \pi^2 * [\log(4)]) \} + [\log(2)]^3 = \\ (1/12) * [21 * \zeta(3) + 4 * \log^3(2) - \pi^2 \log(4)] + \\ [\log(2)]^3 = 1.4074510392050098816001000338016621974969.. \end{aligned}$$

$$\begin{aligned} (1/12) * [21 * \zeta(3) + 4 * \log^3(2) - \pi^2 \log(4)] \\ = 1.407451039295 - [\log(2)]^3 \end{aligned}$$

$$\begin{aligned} [21 * \zeta(3) + 4 * \log^3(2) - \pi^2 \log(4)] \\ = \{ 1.407451039295 - [\log(2)]^3 \} * 12 \end{aligned}$$

$$\begin{aligned} 21 * \zeta(3) = \{ 1.407451039205 - [\log(2)]^3 \} * 12 - 4 * \\ \log^3(2) + \pi^2 \log(4) \end{aligned}$$

$$\begin{aligned} \zeta(3) = [ \{ 1.407451039205 - [\log(2)]^3 \} * 12 - 4 * \log^3(2) + \pi^2 \\ \log(4) ] * (1/21) = 1.202056903160..... \end{aligned}$$

$$\zeta(3) = 1.2020569031595942853997.....$$

## References

1) [https://en.wikipedia.org/wiki/Riemann\\_hypothesis](https://en.wikipedia.org/wiki/Riemann_hypothesis)

### postscript

I use wolframAlpha.



I am a psychiatrist now and also a doctor of brain surgery before.



**(home)**

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