参考资料 <https://zhuanlan.zhihu.com/p/343040291>

结论：Approximately 7 decimal digits

只考虑正数，取最小值时，1.000000000(23个0)，取最大值时1.11111(小数点后23个1)

min = (2^0) \* 2^Exponent

max = (2^1- 2^(-23)) \* 2^Exponent

Gap = (max – min) / (2^23 - 1)

float 精度参考表

|  |  |  |  |
| --- | --- | --- | --- |
| 指数 | Minimum | Maximum | Gap |
| -4 | 0.0625 | ≈ 0.124999992549 | ≈ 7.45058e-9 |
| -3 | 0.125 | ≈ 0.249999985098 | ≈ 1.49012e-8 |
| -2 | 0.25 | ≈ 0.499999970197 | ≈ 2.98023e-8 |
| -1 | 0.5 | ≈ 0.999999940395 | ≈ 5.96046e-8 |
| 0 | 1 | ≈ 1.999999880791 | ≈ 1.19209e-7 |
| 1 | 2 | ≈ 3.999999761581 | ≈ 2.38419e-7 |
| 2 | 4 | ≈ 7.999999523163 | ≈ 4.76837e-7 |
| 3 | 8 | ≈ 15.99999904632 | ≈ 9.53674e-7 |
| 23 | 8,388,608 | 16,777,215 | 1 |
| 24 | 16,777,216 | 33,554,431 | 2 |
| 127 | 1.70141e38 | 3.40282e38 | ≈ 2.02824e31 |

指数全为0或1有特殊用途，如下图所示：

