Binary Numbers

- Base 2 Number Representation
  - Represent 15213_{10} in Binary
  - To convert we use a sequence of divisions by powers of 2:
    - $15213 - 2^{13} = 15213 - 8192 = 7021$
    - $7021 - 2^{12} = 7021 - 4096 = 2925$
    - $2925 - 2048 = 877$
    - $877 - 512 = 365$ (Note we can't divide by 1024)
    - $365 - 256 = 109$
    - $109 - 64 = 45$
    - $45 - 32 = 13$
    - $13 - 8 = 5$
    - $5 - 4 = 1$
    - $1 - 1 = 0$
    - $\mathbf{11101101101101}_2$

1	2^0
2	2^1
4	2^2
8	2^3
16	2^4
32	2^5
64	2^6
128	2^7
256	2^8
512	2^9
1024	2^{10}
2048	2^{11}
4096	2^{12}
8192	2^{13}
16384	2^{14}