

# The Exponential Power of 2 as it interferes with the MPS

1-3-7-15-31-63-127-255-511-1023-2047-4095-8191

## The Running Sum ( $\Sigma$ ) defines: The MPS-Mp-PN-OC-CR

$$z^2 - 2(y^2) = z \text{ next} = xz + y = 2x^2 - 1$$

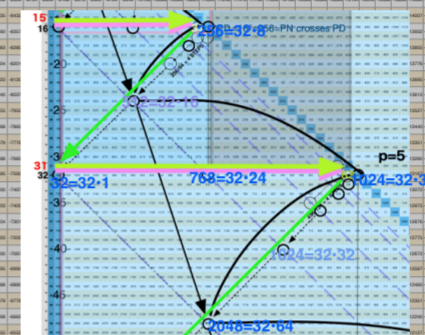
The curved BLACK arc lines follow the exponential power of 2 ---  $2^n$ .

The YELLOW and GREEN lines follow the Running Sums ( $\Sigma = z = Mp$ ) of the exponential power of 2 ---  $2^n$ . (Purple)

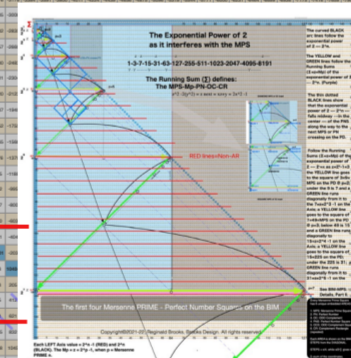
The thin dotted BLACK lines show that the exponential power of 2 ---  $2^n$  --- falls midway --- in the center --- of the PNS along the way to the next MPS or PN crossing on the PD.

Follow the Running Sums ( $\Sigma = z = Mp$ ) of the exponential power of 2 ---  $2^n = x$  as  $z = 2^2 - 1 = 3$  the YELLOW line goes to the square of  $3 = 9 = \text{MPS on the PD @ } p=2$ ; under the 9 is 7 and a GREEN line runs diagonally from it to the  $7 = z = 2^3 - 1$  on the Axis; a YELLOW line goes to the square of  $7 = 49 = \text{MPS on the PD @ } p=3$ ; below 49 is 15 and a GREEN line runs diagonally to  $15 = z = 2^4 - 1$  on the Axis; a YELLOW line goes to the square of  $15 = 225$  on the PD; under the 225 is 31; a GREEN line runs diagonally from it to  $31 = z = 2^5 - 1$  on the

DIAMOND NPS of 32 inset



SQUARE NPS of 32 inset



RED LINES = NON-AR

The first four Mersenne PRIME - Perfect Number Squares on the BIM

Copyright©2021-22, Reginald Brooks, Brooks Design. All rights reserved.

Each LEFT Axis value =  $2^n - 1$  (RED) and  $2^n$  (BLACK). The  $M_p = z = 2^p - 1$ , when  $p = \text{Mersenne PRIME } n$ .

Every Mersenne Prime Square has 6 unique embedded AREAS:

1. MPS: Mersenne Prime Square
2. PN: Perfect Number
3. OC: ODD Complement
4. PNS: Perfect Number Square
5. OCS: ODD Complement Square
6. CR: Complement Rectangle (repeated)

Each AREA is shown on the BIM as STEPS from the DIAGONAL.

STEPS =  $x/4$ , while  $x/2 \cdot \Sigma$  gives values.

$\Sigma = \text{sum of the coordinates.}$