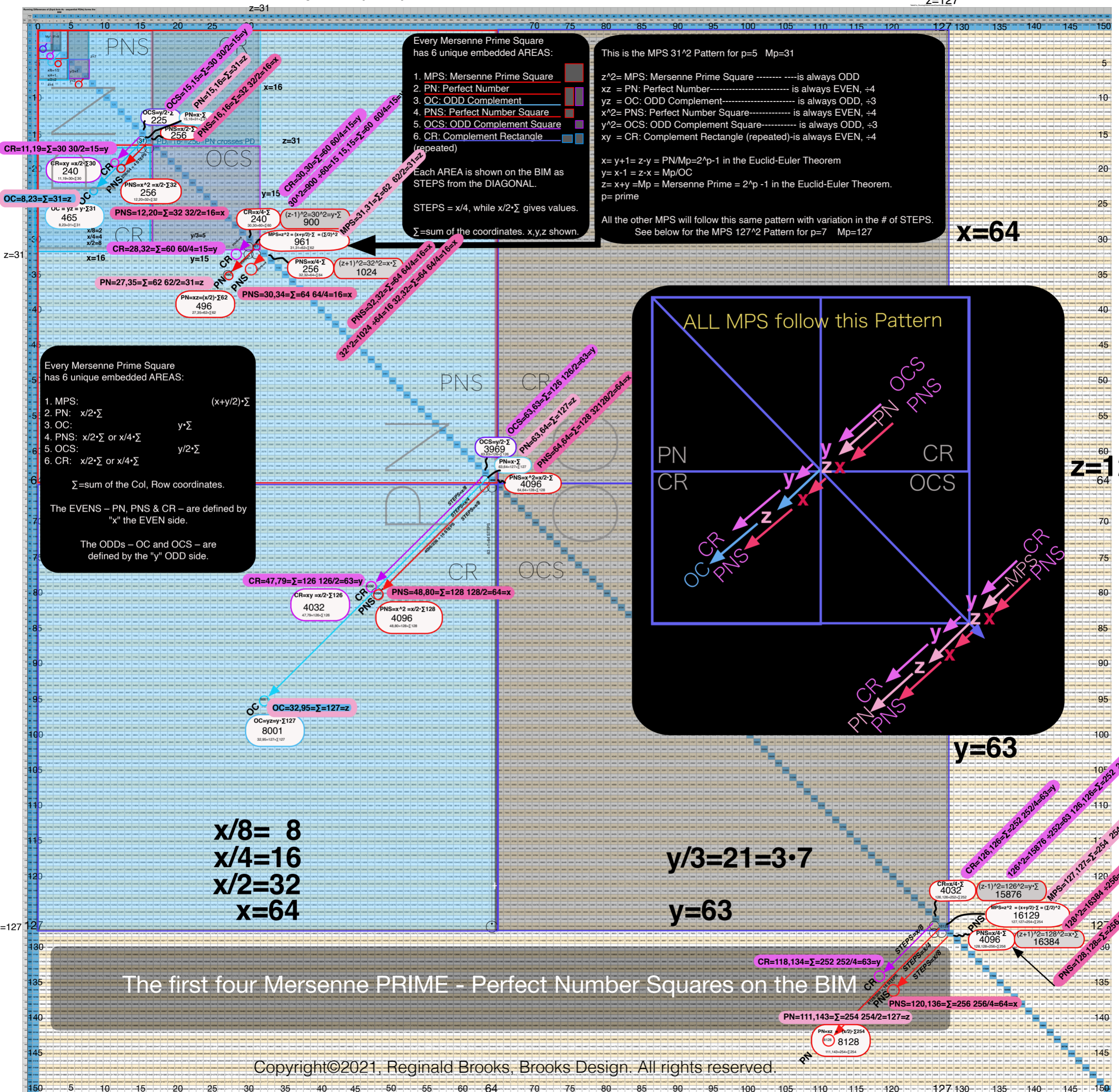


# The First 4 Mersenne Prime Squares (MPS) on the BIM

z=127



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.

$\Sigma$  = sum of the coordinates. x,y,z shown.

This is the MPS 31<sup>2</sup> Pattern for p=5 Mp=31

z<sup>2</sup>= MPS: Mersenne Prime Square ----- is always ODD  
 xz = PN: Perfect Number----- is always EVEN,  $\pm 4$   
 yz = OC: ODD Complement----- is always ODD,  $\pm 3$   
 x<sup>2</sup>= PNS: Perfect Number Square----- is always EVEN,  $\pm 4$   
 y<sup>2</sup>= OCS: ODD Complement Square----- is always ODD,  $\pm 3$   
 xy = CR: Complement Rectangle (repeated)-is always EVEN,  $\pm 4$

x= y+1= z-y = PN/Mp=2<sup>p</sup>-1 in the Euclid-Euler Theorem  
 y= x-1 = z-x = Mp/OC  
 z= x+y =Mp = Mersenne Prime = 2<sup>p</sup>-1 in the Euclid-Euler Theorem.  
 p= prime

All the other MPS will follow this same pattern with variation in the # of STEPS.  
 See below for the MPS 127<sup>2</sup> Pattern for p=7 Mp=127

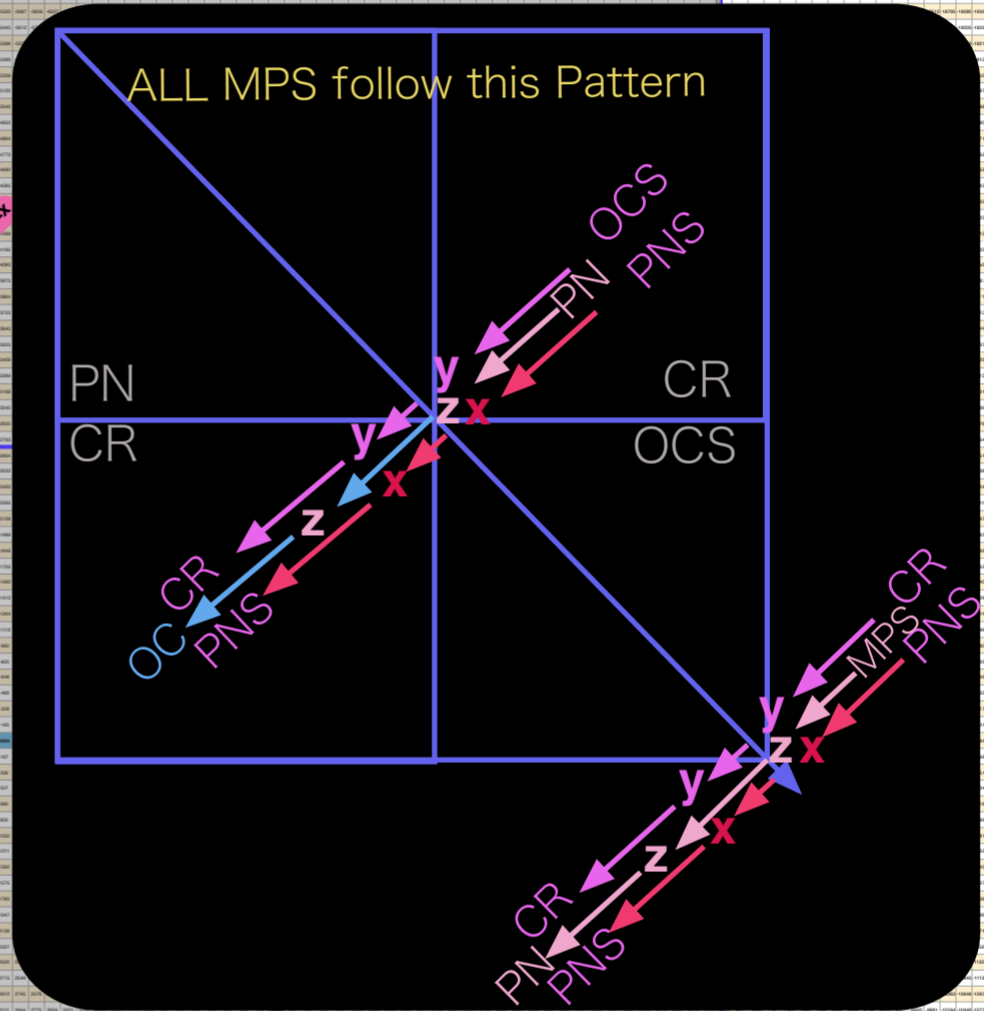
Every Mersenne Prime Square has 6 unique embedded AREAS:

1. MPS:  $(x+y/2) \cdot \Sigma$
2. PN:  $x/2 \cdot \Sigma$
3. OC:  $y \cdot \Sigma$
4. PNS:  $x/2 \cdot \Sigma$  or  $x/4 \cdot \Sigma$
5. OCS:  $y/2 \cdot \Sigma$
6. CR:  $x/2 \cdot \Sigma$  or  $x/4 \cdot \Sigma$

$\Sigma$  = sum of the Col, Row coordinates.

The EVENS – PN, PNS & CR – are defined by "x" the EVEN side.

The ODDs – OC and OCS – are defined by the "y" ODD side.



x/8= 8  
 x/4=16  
 x/2=32  
 x=64

y/3=21=3·7  
 y=63

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