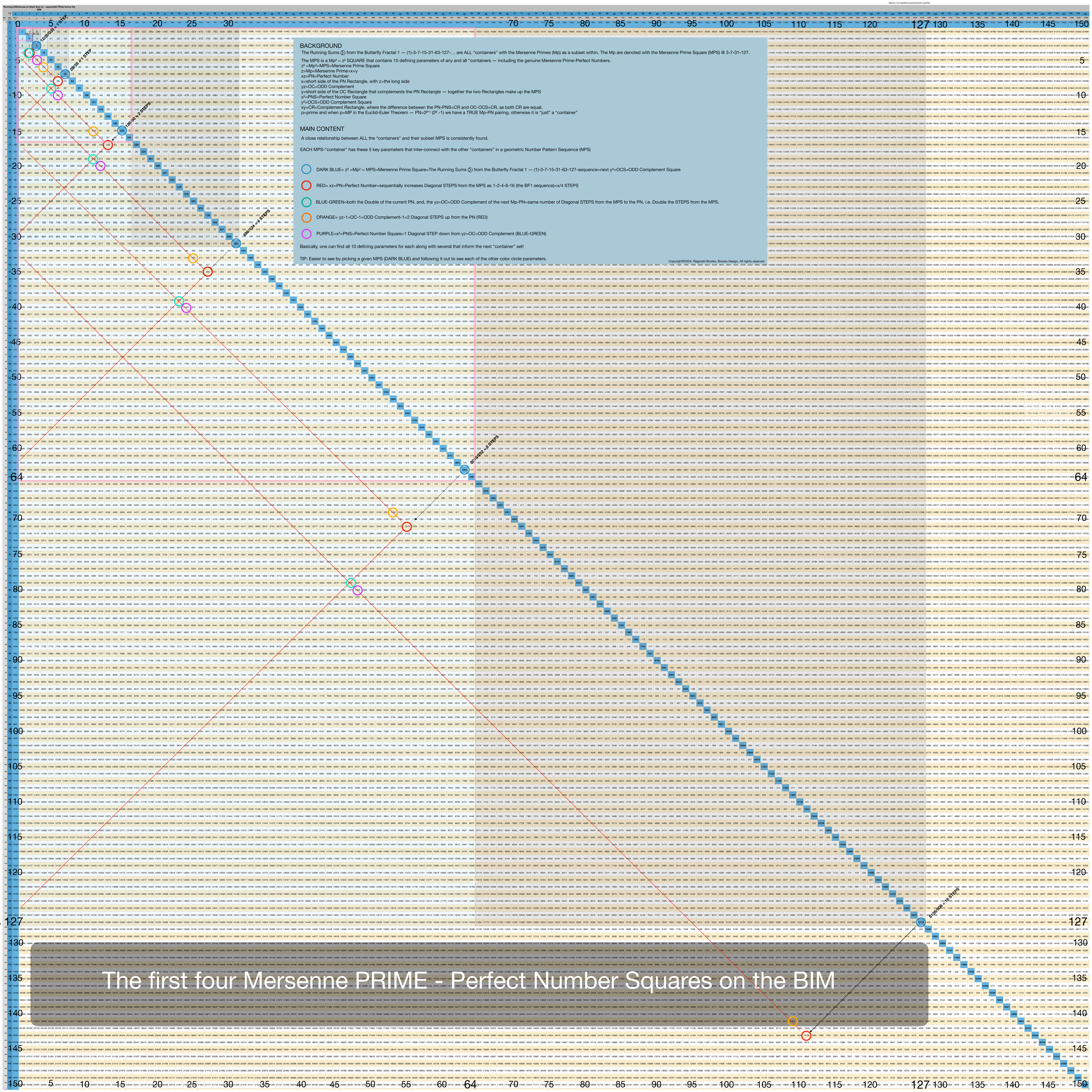
BACKGROUND
The Running Sums (∑) from the Butterfly Fractal 1 — (1)-3-7-15-31-63-127-… are ALL "containers" with the Mersenne Primes (Mp) as a subset within. The Mp are denoted with the Mersenne Prime Square (MPS) @ 3-7-31-127.
The MPS is a Mp² = z² SQUARE that contains 10 defining parameters of any and all "containers — including the genuine Mersenne Prime-Perfect Numbers.
z² =Mp²=MPS=Mersenne Prime Square
z=Mp=Mersenne Prime=x+y
xz=PN=Perfect Number
x=short side of the PN Rectangle, with z=the long side
yz=OC=ODD Complement
y=short side of the OC Rectangle that complements the PN Rectangle — together the two Rectangles make up the MPS
x²=PNS=Perfect Number Square
y²=OCS=ODD Complement Square
xy=CR=Complement Rectangle, where the difference between the PN-PNS=CR and OC-OCS=CR, as both CR are equal.
p=prime and when p=MP in the Euclid-Euler Theorem — PN=2ᵖ⁻¹ (2ᵖ -1) we have a TRUE Mp-PN pairing, otherwise it is "just" a "container"
MAIN CONTENT
A close relationship between ALL the "containers" and their subset MPS is consistently found.
EACH MPS-"container" has these 5 key parameters that inter-connect with the other "containers" in a geometric Number Pattern Sequence (NPS)
DARK BLUE= z² =Mp² = MPS=Mersenne Prime Square=The Running Sums (∑) from the Butterfly Fractal 1 — (1)-3-7-15-31-63-127-sequence=next y²=OCS=ODD Complement Square
RED= xz=PN=Perfect Number=sequentially increases Diagonal STEPS from the MPS as 1-2-4-8-16 (the BF1 sequence)=x/4 STEPS
BLUE-GREEN=both the Double of the current PN, and, the yz=OC=ODD Complement of the next Mp-PN=same number of Diagonal STEPS from the MPS to the PN, i.e. Double the STEPS from the MPS.
ORANGE= yz-1=OC-1=ODD Complement-1=2 Diagonal STEPS up from the PN (RED)
PURPLE=x²=PNS=Perfect Number Square=1 Diagonal STEP down from yz=OC=ODD Complement (BLUE-GREEN)
Basically, one can find all 10 defining parameters for each along with several that inform the next "container" set!
TIP: Easier to see by picking a given MPS (DARK BLUE) and following it out to see each of the other color circle parameters.
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The first four Mersenne PRIME - Perfect Number Squares on the BIM