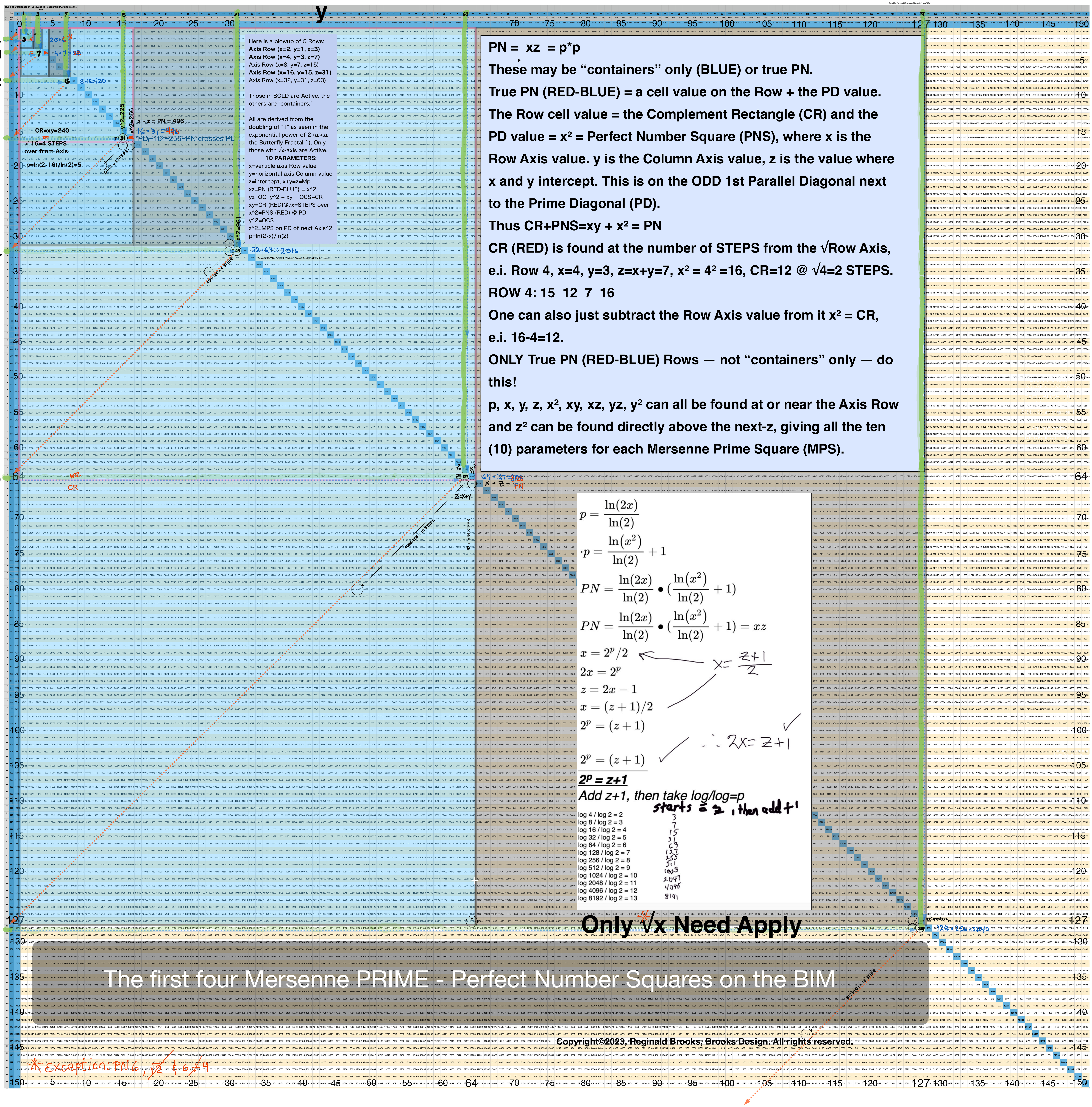

y
x
Here is a blowup of 5 Rows:
Axis Row (x=2, y=1, z=3)
Axis Row (x=4, y=3, z=7)
Axis Row (x=8, y=7, z=15)
Axis Row (x=16, y=15, z=31)
Axis Row (x=32, y=31, z=63)
Those in BOLD are Active, the others are "containers."
All are derived from the doubling of "1" as seen in the exponential power of 2 (a.k.a. the Butterfly Fractal 1). Only those with √x-axis are Active.
10 PARAMETERS:
x=verticle axis Row value
y=horizontal axis Column value
z=intercept, x+y=z=Mp
xz=PN (RED-BLUE) = x^2
yz=OC=y^2 + xy = OCS+CR
xy=CR (RED)@√x=STEPS over
x^2=PNS (RED) @ PD
y^2=OCS
z^2=MPS on PD of next Axis^2
p=ln(2·x)/ln(2)
CRxy=240
√16=4 STEPS over from Axis
p=ln(2·16)/ln(2)=5
x · z = PN = 496
PD=16²=256=PN crosses PD
32·63=2016
PN = xz = p*p
These may be "containers" only (BLUE) or true PN.
True PN (RED-BLUE) = a cell value on the Row + the PD value.
The Row cell value = the Complement Rectangle (CR) and the PD value = x² = Perfect Number Square (PNS), where x is the Row Axis value. y is the Column Axis value, z is the value where x and y intercept. This is on the ODD 1st Parallel Diagonal next to the Prime Diagonal (PD).
Thus CR+PNS=xy + x² = PN
CR (RED) is found at the number of STEPS from the √Row Axis, e.i. Row 4, x=4, y=3, z=x+y=7, x² = 4² =16, CR=12 @ √4=2 STEPS.
ROW 4: 15 12 7 16
One can also just subtract the Row Axis value from it x² = CR, e.i. 16-4=12.
ONLY True PN (RED-BLUE) Rows — not "containers" only — do this!
p, x, y, z, x², xy, xz, yz, y² can all be found at or near the Axis Row and z² can be found directly above the next-z, giving all the ten (10) parameters for each Mersenne Prime Square (MPS).
64·127=8128
x · z = PN
z=x+y
$p = \frac{\ln(2x)}{\ln(2)}$
$\cdot p = \frac{\ln(x^2)}{\ln(2)} + 1$
$PN = \frac{\ln(2x)}{\ln(2)} \bullet (\frac{\ln(x^2)}{\ln(2)} + 1)$
$PN = \frac{\ln(2x)}{\ln(2)} \bullet (\frac{\ln(x^2)}{\ln(2)} + 1) = xz$
$x = 2^p/2$
$2x = 2^p$
$z = 2x - 1$
$x = (z+1)/2$
$2^p = (z+1)$
x= z+1 / 2
∴ 2x = z+1
$2^p = (z+1)$
$2^p = z+1$
Add z+1, then take log/log=p
starts = 2, then add +1
log 4 / log 2 = 2
log 8 / log 2 = 3
log 16 / log 2 = 4
log 32 / log 2 = 5
log 64 / log 2 = 6
log 128 / log 2 = 7
log 256 / log 2 = 8
log 512 / log 2 = 9
log 1024 / log 2 = 10
log 2048 / log 2 = 11
log 4096 / log 2 = 12
log 8192 / log 2 = 13
3
7
15
31
63
127
255
511
1023
2047
4095
8191
Only √x Need Apply
128·255=32640
The first four Mersenne PRIME - Perfect Number Squares on the BIM
*exception: PN6, √2 ≠ 6≠4