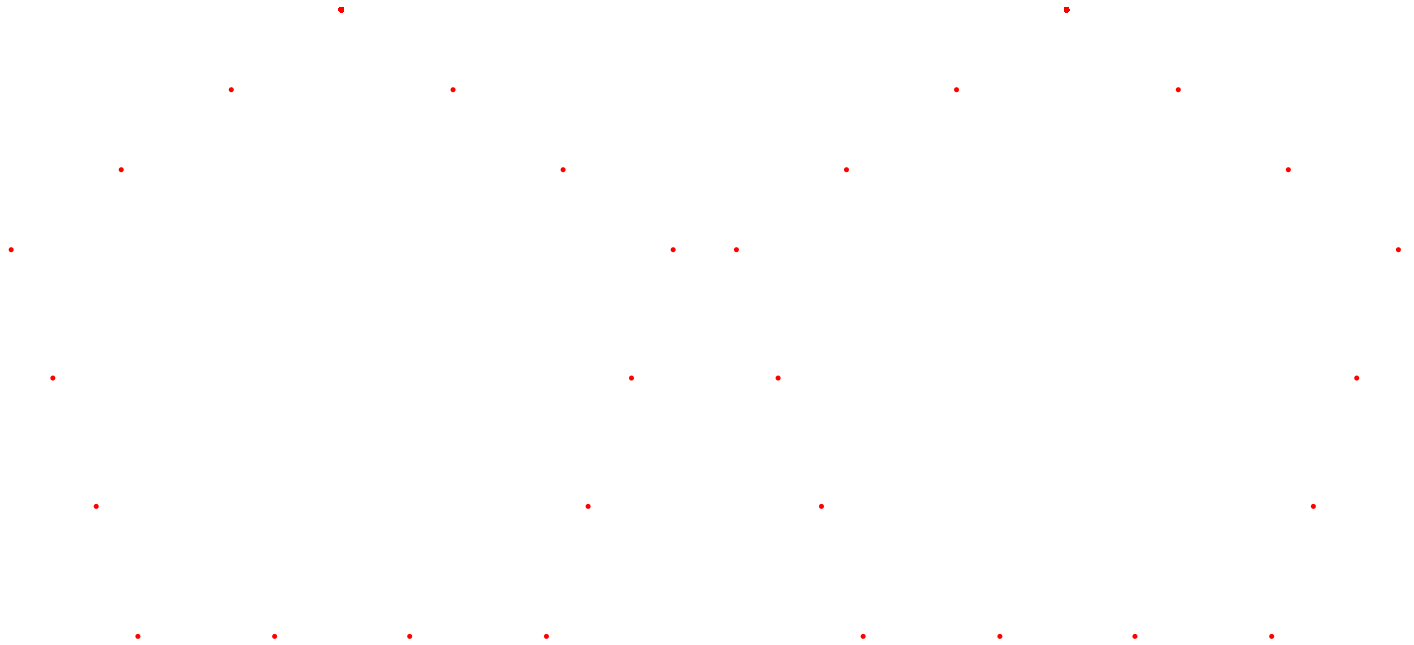
Pencil and Ruler Exercise: **Changing *P* (subdivisions between points)**

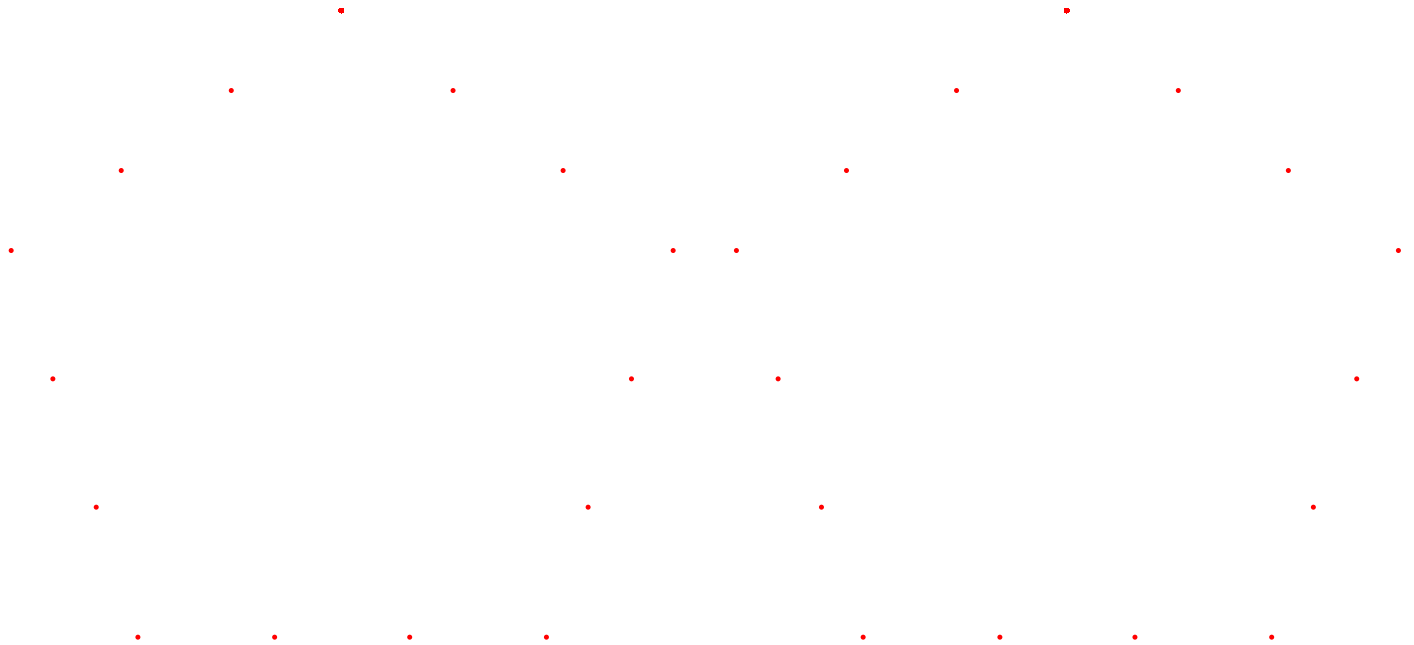
for fixed ***n*** (vertices in polygon), ***S*** (subdivisions between vertices) and ***J*** (polygon vertex jumps)

FACT: All four subdivision dot-plots have the same number of ***n, n*** =____ , the same number for ***S***, ***S*** =____, and the same number for ***J***, ***J*** =____.

Instructions: For each ***P***, start at the top dot and *draw each image from point to point* with pencil and ruler.



P = 2. Are all subdivision points used? ____. SCF =_____.



P = 4. Are all subdivision points used? ____. SCF =_____.

P = 5. Are all subdivision points used? ____. SCF =_____.

P = 7. Are all subdivision points used? ____. SCF =_____.

NOTE: SCF is calculated as: SCF = GCD(***n***·***S***/VCF(***n***, ***J***), ***P***) where VCF = GCD(***n***, ***J***) and GCD is the greatest common divisor (also called greatest common factor) between the two numbers. (In the above images, VCF = 1.) One can see SCF as the bottom of the fraction of subdivisions used (so for example, if 1/2 of the subdivisions are used, SCF = 2).