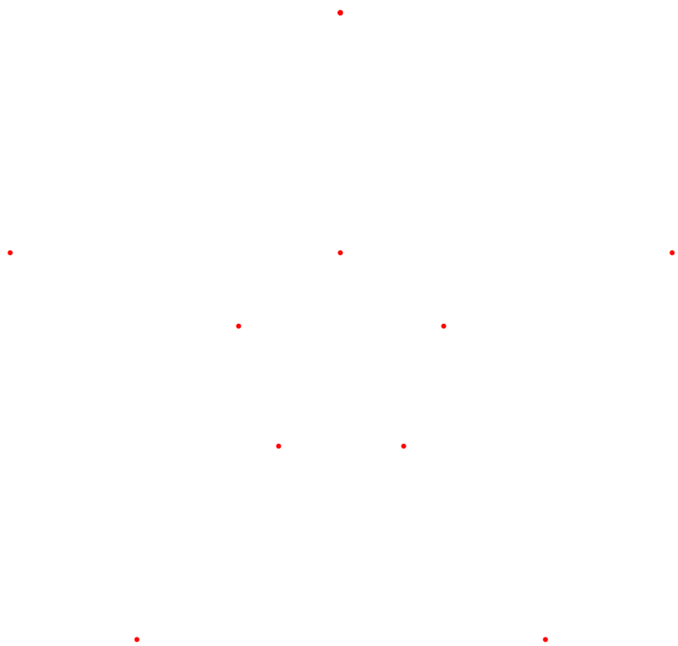
Pencil and Ruler Exercise: **Changing *S* (subdivisions between vertices)**

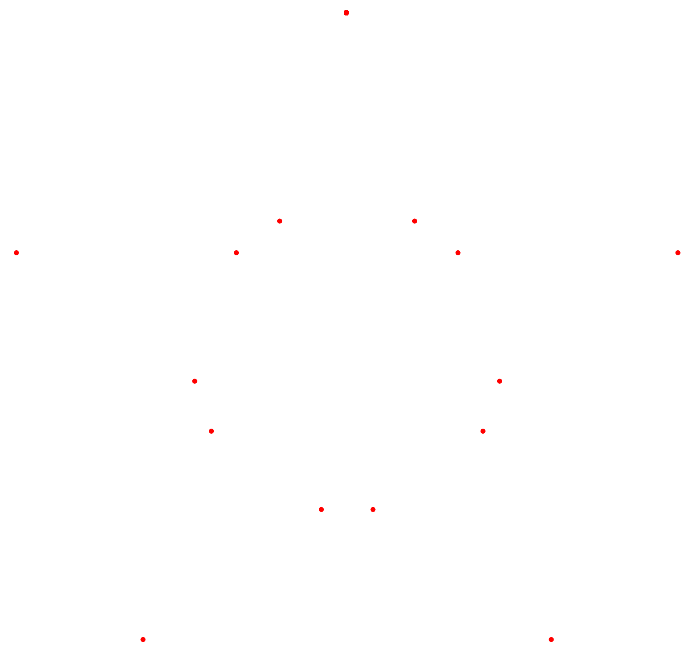
with fixed ***n*** (vertices in polygon), ***P*** (subdivisions between points) and ***J*** (polygon vertex jumps)

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

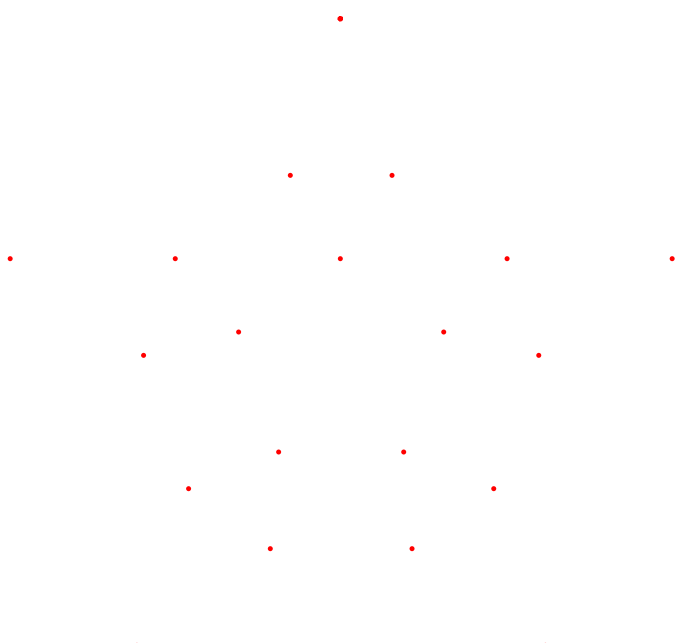
Drawing Instructions: Start at the top dot and *draw each image from point to point* with pencil and ruler assuming **six** subdivisions between points, ***P*** = 6.



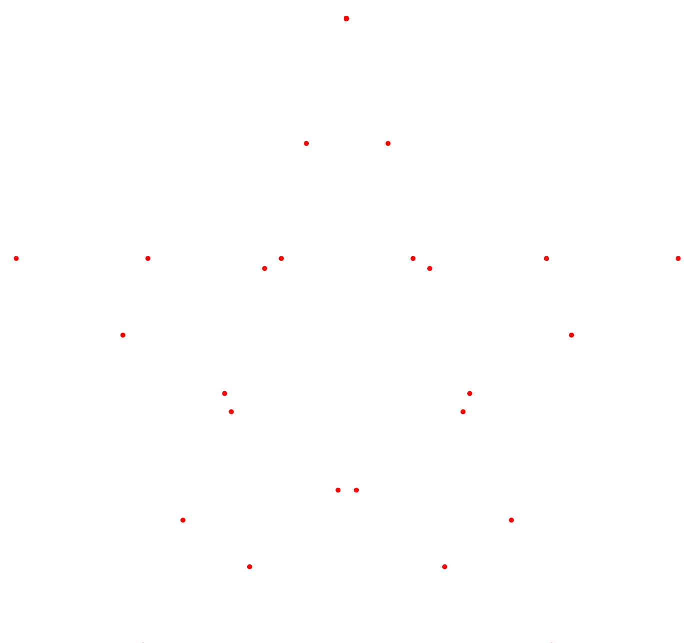
S =___. Are all subdivision points used? _____. SCF =______.



S =___. Are all subdivision points used? _____. SCF =______.



S =___. Are all subdivision points used? _____. SCF =______.



S =___. 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).