# Glossary of Commonly Used Terms
## (Reference to where the term was introduced)

***C*** is the number of segments in a cycle. ***C*** = ***S***/GCD(***S***, ***P***). (2.2c)

Circuit: A circuit is complete once the starting point for the image (in **PwP** this is always the top of the circle) is achieved as an endpoint. (1.2)

Continuously drawn: An image is continuously drawn if line segments are connected from one to another following a rule until the initial starting point is obtained as the end point of a segment. This applies both to polygons and stars (1.2) and to images with subdivisions (2.1).

Cycle: A partial image consisting of the line segments needed to get from Level 0 back to Level 0. (2.2c)

Distinct images: Images based on different ***n***, ***S***, ***P***, ***J*** values may look identical to one another. There are a variety of reasons this may happen. Distinct images have different ***n***, ***S***, ***P***, ***J*** values AND look different from one another. (2.3)

***E*** is the number of the parent polygon vertex that occurs at the end of the first cycle. (2.2d)

**GCD**: The greatest common divisor of two numbers is the largest factor common to both.

Image: Term used for a completed graph. (Introduction)

***J*** is the number of ***J***umps between vertices. When ***J*** = 1, the resulting image is a polygon. If ***J*** > 1, stars can emerge. (1)

Just-over and Just-under multiples: Interesting images often times occur when one parameter is close to but not quite a multiple of another. This is seen in numerous places but notably in 1.4, stars as rotating polygons (when ***n*** = ***m********J*** ± ***a*** where ***m*** is a whole number and ***a*** is a small whole number. In **File 2**, this is seen in 2.6b *One Level Change* images, 2.7 *Shape-shifting* polygons, as well as with numerous image archetypes in 2.9.

***L*** is the number of ***L***ine segments in the image. An image may appear to have fewer line segments than listed for a couple of reasons: 1) segments may overlap; 2) segments may be part of the same line. An example of the first is the vertical line that results whenever ***n*** is even and ***J*** = ***n***/2. The simplest example of the second is when (***n***, ***S***, ***P***, ***J***) = (3, 2, 1, 1). The resulting triangle has ***L*** = 6, 2 on each of the 3 sides. (2.2a)

Levels: There are INTEGER(***S***/2) subdivision-point-created concentric interior circles. (INTEGER is the integer portion of a fraction so INTEGER(5/2) = INTEGER(2.5) = 2 (not 3 as would be the case were we to round up to the next nearest integer as is common mathematical practice).) Points at Level 0 are polygonal vertices and Level INTEGER(***S***/2) is the smallest circle. (2.6)

***M*** is the number of cycles in an image. ***M*** must be a factor of ***n***. (2.2c)

***n***-gon: An ***n***-sided polygon. (1)

***n***-gram: An ***n***-sided star. This is a generalization of pentagram. (1)

*One-time-around* images: If ***T*** = 1 the image is called a *one-time-around* image. (2.2d)

***P*** is the number of subdivisions between ***P***oints. ***P*** is a whole number. The image is created by connecting subdivision endpoints that are ***P*** subdivisions apart with a line segment. (2.1)

Polygon: A polygon occurs if the line segments comprising the image do not cross over one another except at the common endpoint. A polygon is regular if all vertices are equally spaced around a circle. Also called an ***n***-gon. (1)

***S*** is the number of equally spaced ***S***ubdivisions between successive vertices in the vertex frame. ***S*** is a whole number. (2.1)

**SCF**: The *subdivision common factor*, ***SCF***, is given by ***SCF*** = **GCD**(***P***, ***S****$v_{used}$) (2.2a)

Star: A star occurs when the image has segments that cross over other segments at points other than their endpoints. Also called an ***n***-gram. (1)

Vertex frame: The vertex frame is the set of line segments which include all possible subdivisions. The vertex frame is solely determined by ***n*** and ***J***. One can visualize the vertex frame by setting ***S*** = ***P***. (2.2b)

***T*** is the number of times around vertices of the parent polygon are added to create the image. This is most easily seen using *Toggle Drawing* on the companion website. The easiest to see are *1x-around* and *2x-around* images. (2.2d)

**VCF**: The *vertex common factor*, **VCF**, is given by ***VCF*** = **GCD**(***J***, ***n***). (2.2a)

$\mathbf{v_{used}}$: The *number of polygon vertices used* is given by $v_{used}$ = ***n***/***VCF***. (2.2a)