

The perimeters of polygons Worksheet

Number of sides	Central angle (θ)	Length of each side	Perimeter/2
3	120	1.732	2.598

Complete the table above according to these directions:

1. *Column one:* Enter the following numbers: 4, 6, 9, 12, 15, 20, 60, 120.
 - This represents the number of sides of a polygon.
2. *Column two:* Enter the value of 360 divided by the value in column one.
 - This represents a **central angle**; this will be explained later.
3. *Column three:* Make sure your calculator is set to degrees. Take the value in column two, θ , and put it into this formula: $\sqrt{2 * (1 - \cos(\theta))}$.
 - This represents the length of one side of the polygon.
4. *Column four:* Multiply the values in columns one and three, and divide by 2.
 - This represents half the perimeter of the polygon (we'll discuss later why we're dividing by two).

Look at the last column. How are these numbers behaving? Are they getting closer to any particular value? If this number looks familiar, think about why this might be occurring.