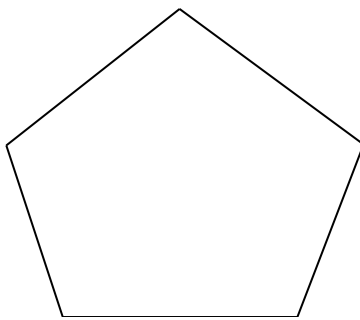


Assignment in Computer Graphics II

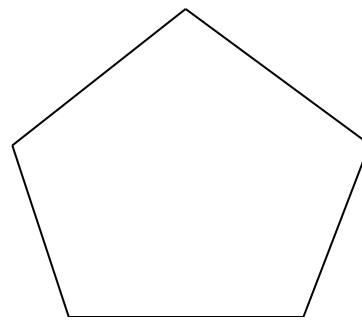
– Assignment 8 –
Computer Graphics and
Multimedia Systems Group
David Bulczak, Christoph Schikora

Assignment 1 [1 Point] Subdivision Curves

Perform one step of a subdivision procedure for each of the pentagons below. Chaikin (left) and the 4-point method (right) by drawing the new polygon and its vertices (the exact position of the vertices are not relevant).



Chaikin



4-Point

Assignment 2 [1 Point] Complex numbers

1. Given two complex numbers $p = 3 + 2i$ and $q = -3 + 3i$. Calculate $p + q$ and $p \cdot q$.
2. Specify the real and imaginary parts for the following terms:

$$\frac{3 + i\sqrt{7}}{4}$$
$$e^{1+i\pi}$$

3. Simplify the expression $i + i^2 + i^3 + i^4 + i^5$ as much as possible.
4. Find all the (complex) solutions of the following quadratic equation:

$$z^2 - 2z + 10 = 0, \quad z \in \mathbb{C}$$

5. Transform $1 + i$ to polar coordinates.

Assignment 3 [1 Point] Complex numbers (Bonus task)

Show that the product of two complex numbers $c_1, c_2 \in \mathbb{C}$ with $|c_1| = |c_2| = 1$ holds: $|c_1 \cdot c_2| = 1$.

Submission: 04.12.2014, before/at the beginning of the exercise.