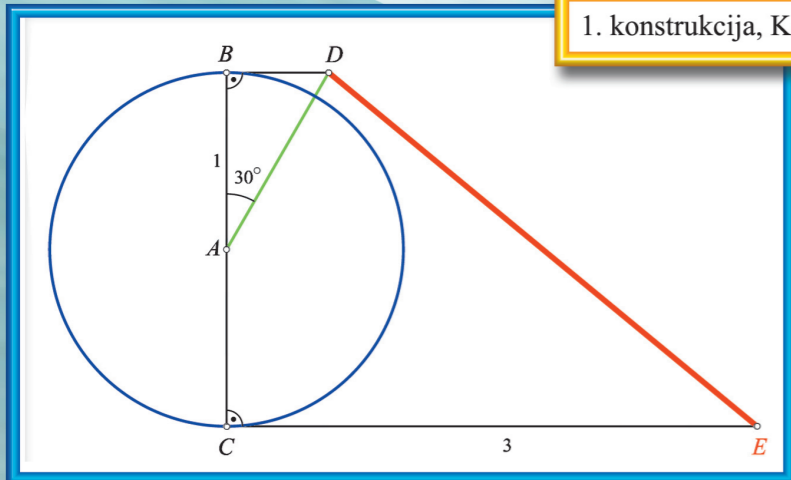


PRIBLIŽNA KONSTRUKCIJA DUŽINE DULJINE π

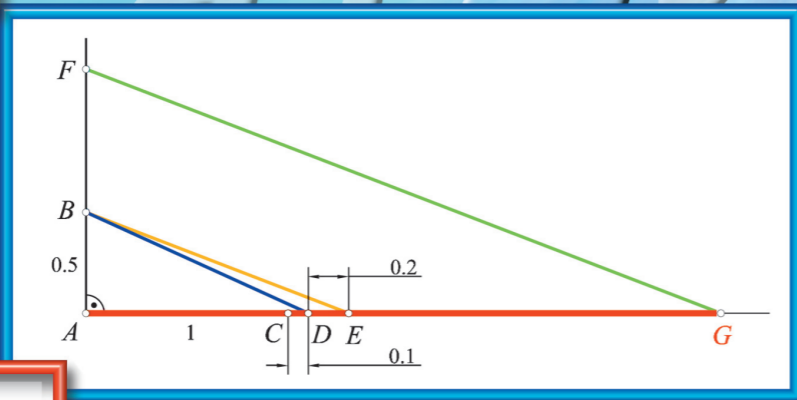
1. konstrukcija, Kochansky, 1685.



$$\begin{aligned}
 |AB| &= |AC| = 1 \\
 \sphericalangle BAD &= 30^\circ \\
 |CE| &= 3 \\
 |ED| &= \sqrt{|BC|^2 + (|CE| - |BD|)^2} \\
 &= \sqrt{4 + (3 - 1/\sqrt{3})^2} \\
 &= \sqrt{40/3 - 6/\sqrt{3}} \\
 &= 3.141533 \approx \pi
 \end{aligned}$$

Pogreška: 1.8×10^{-5} .

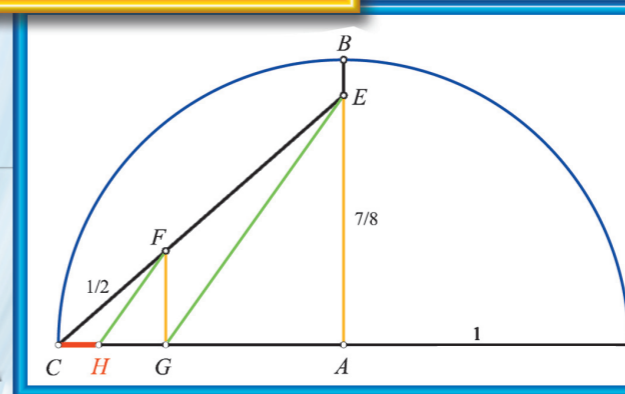
2. konstrukcija, Specht, 1836.



$$\begin{aligned}
 |AB| &= 0.5 & |AC| &= 1 \\
 |CD| &= 0.1 & |DE| &= 0.2 \\
 |AF| &= |BD| = \sqrt{1.1^2 + 0.6^2} = \sqrt{146}/10 \\
 \overline{FG} &\parallel \overline{BE} \\
 |AG| &= |AE| \cdot |AF| / |AB| \\
 &= 13\sqrt{146}/50 \\
 &= 3.1415919 \approx \pi
 \end{aligned}$$

Pogreška: 2×10^{-7} .

3. konstrukcija, Jacob de Gelder, 1849.

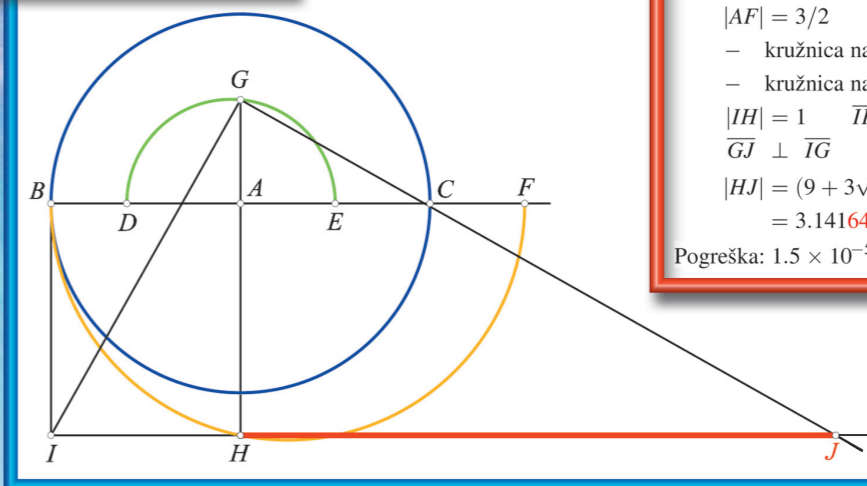


$$\begin{aligned}
 |AB| &= |AC| = 1 \\
 |AE| &= 7/8 & |CF| &= 1/2 \\
 \overline{FG} &\parallel \overline{AB} & \overline{FH} &\parallel \overline{EG} \\
 |CF|/|CH| &= |CE|/|CG| \\
 |CH| &= |CF| \cdot |CG| / |CE| \\
 &= |CF|^2 / |CE|^2 \\
 &= (1/4)^2 / [1 + (7/8)^2] \\
 &= 4^2 / (8^2 + 7^2) \\
 &= 0.1415929 \approx \pi - 3 \\
 \text{Pogreška: } &8.5 \times 10^{-8}.
 \end{aligned}$$

Uočite:

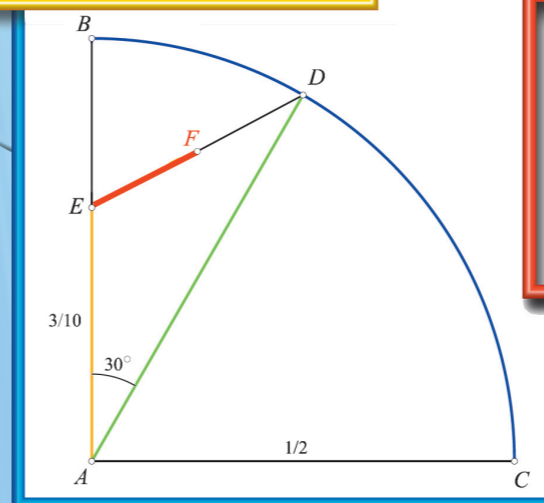
kako je $|GH| \approx \sqrt{\pi}$, to je kvadrat duljine dužine \overline{GH} zapravo približna vrijednost za kvadrat broja π .

4. konstrukcija, Hobson, 1913.



$$\begin{aligned}
 |AB| &= |AC| = 1 \\
 |AD| &= 3/5 & |AE| &= 1/2 \\
 |AF| &= 3/2 \\
 &\text{-- kružnica nad promjerom } \overline{DE} \\
 &\text{-- kružnica nad promjerom } \overline{BF} \\
 |IH| &= 1 & \overline{IH} &\parallel \overline{BC} \\
 \overline{GJ} &\perp \overline{TG} \\
 |HJ| &= (9 + 3\sqrt{5})/5 \\
 &= 3.14164 \approx \pi \\
 \text{Pogreška: } &1.5 \times 10^{-5}.
 \end{aligned}$$

5. konstrukcija, Goodhue, 1974.



$$\begin{aligned}
 |AB| &= |AC| = 1/2 \\
 |AE| &= 3/10 \\
 \sphericalangle BAD &= 30^\circ \\
 |EF| &= |FD| \\
 |EF| &= 1/2 \sqrt{(\sqrt{3}/4 - 3/10)^2 + 1/16} \\
 &= 0.1415912 \approx \pi - 3 \\
 \text{Pogreška: } &4 \times 10^{-7}.
 \end{aligned}$$

