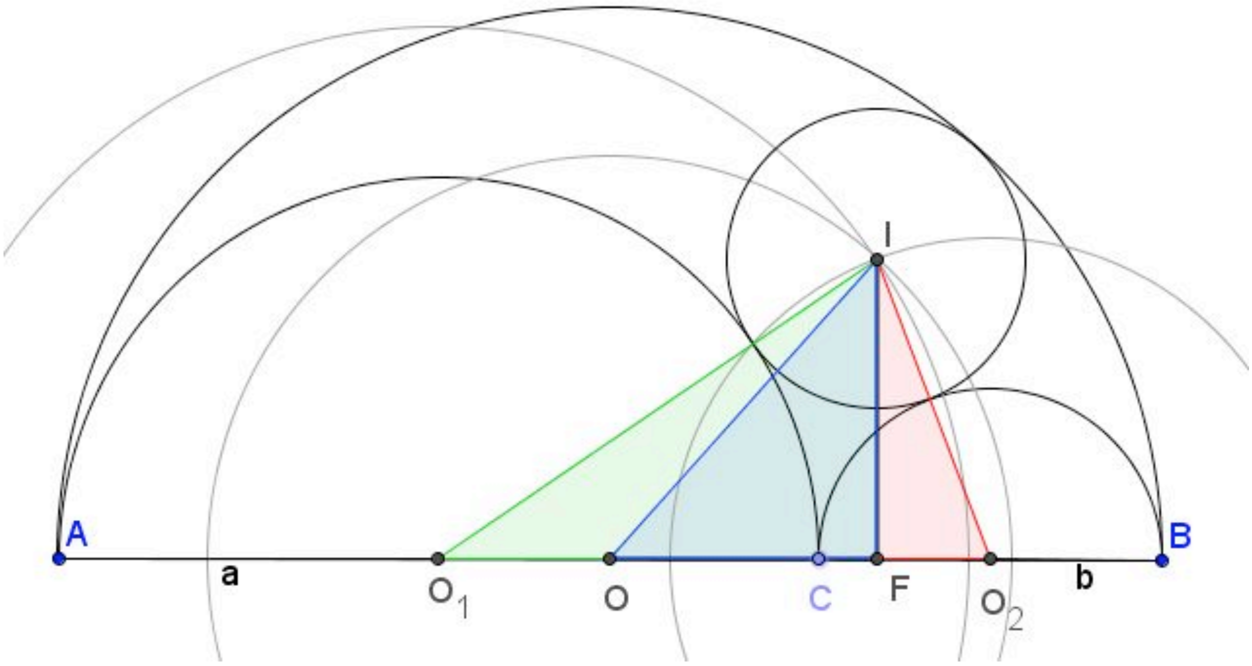
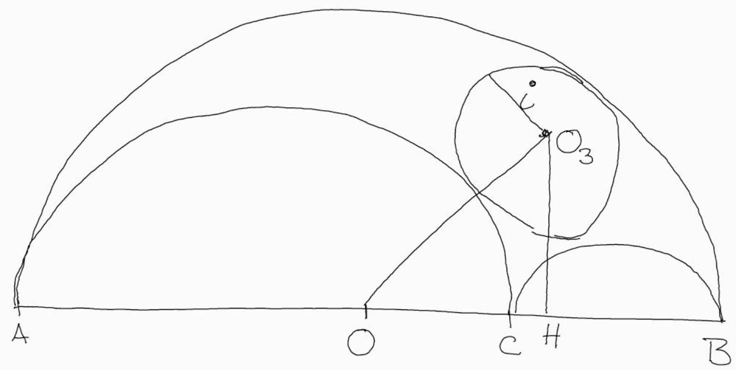
Mitschriften vom 14.1.08



Die maßgebliche Konstruktion für den Ansatz.

Der Inkreis des Arbelos



$|OH| = s$

Pythagoras im ΔOHO_3

$$(a+b-i)^2 = s^2 + h^2 \quad (1)$$

im ΔO_1HO_3

$$(a+i)^2 = (b+s)^2 + h^2 \quad (2)$$

im ΔO_2O_3H

$$(b+i)^2 = (a-s)^2 + h^2 \quad (3)$$

$$(1)\quad a^2+b^2+i^2+2ab-2ai-2bi = s^2+h^2$$

$$(2)\quad a^2+i^2+2ai = b^2+2bs+s^2+h^2$$

$$(3)\quad b^2+i^2+2bi = a^2-2as+s^2+h^2$$

$$(1)-(2)\quad b^2+2ab-4ai-2bi = -b^2-2bs$$

$$2b^2+2ab-4ai-2bi = -2bs \quad |:(-2)$$

$$-b^2-ab+2ai+bi = bs \quad (4)$$

$$(1)-(3)\quad a^2+2ab-2ai-4bi = -a^2+2as \quad |+a^2$$

$$2a^2+2ab-2ai-4bi = 2as \quad |:2$$

$$a^2+ab-ai-2bi = as \quad (5)$$

$$(4)\cdot a = (5)\cdot b$$

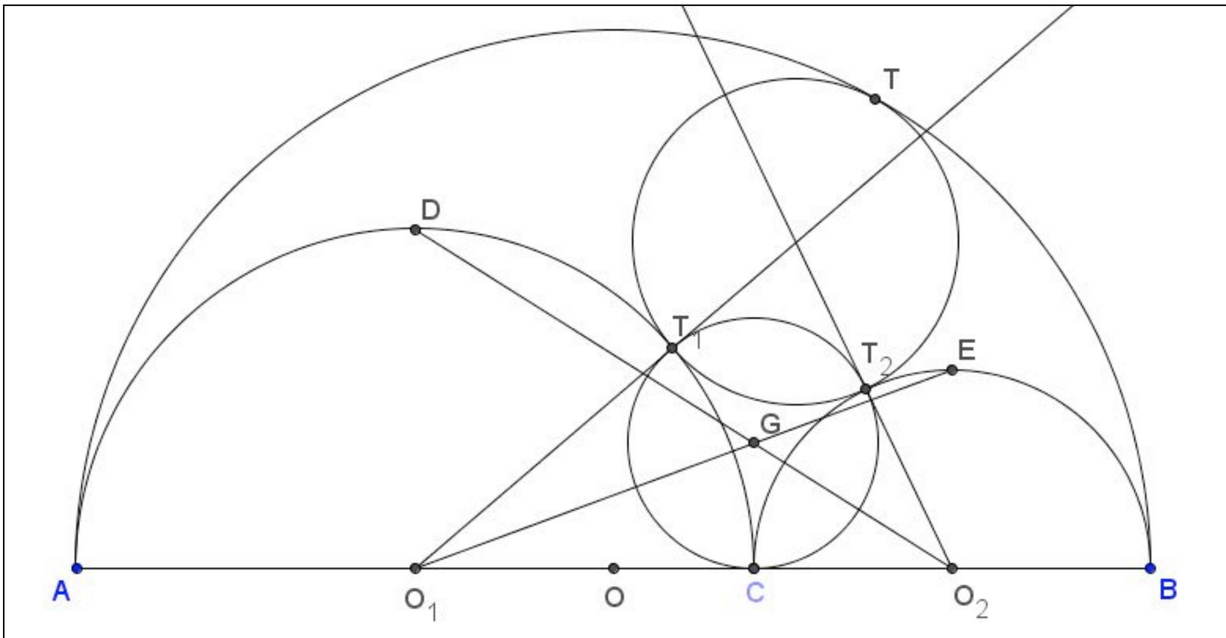
$$-ab^2-a^2b+2a^2i+abi = a^2b+ab^2-abi-2b^2i$$

$$2a^2i+2abi+2b^2i = 2ab^2+2a^2b$$

$$i = \frac{ab^2+a^2b}{a^2+ab+b^2}$$

$$s = \frac{(a-b)(a+b)^2}{a^2+ab+b^2}$$

$$h = 2\,\frac{ab^2+a^2b}{a^2+ab+b^2} = 2i$$



Eine Konstruktion des Inkreises, die ebenfalls von Bankoff stammt.