constrained sphere diameter

B

a

D   C

d

Torus

c

b

alfa

A

center of torus

Y-coordinate of the sphere

distance a   radius of the constrained sphere diameter
distance b   radius of the torus
distance c   Y-coordinate of the sphere

triangle ABC:

$cos(alfa) = (b^2 + c^2 - a^2) / 2 * b * c$

triangle ACD:

$sin(alfa) = d / b$

result = d * 2