

no r. cos!

$$36 = r^2 + r^2 + 2r^2 \cos \alpha.$$

$$36 = 2r^2 + 2r^2 \cos \alpha. \Rightarrow \cos \alpha = \frac{36 - 2r^2}{2r^2}$$

no r. cos:

$$64 = R^2 + R^2 - 2R^2 \cos \alpha$$

$$64 = 2R^2 - 2R^2 \cos \alpha \Rightarrow \cos \alpha = \frac{2R^2 - 64}{2R^2} \text{ (1)}$$

Круговые.

$$\frac{36}{4r^2} - 1 = 1 - \frac{64}{4R^2}$$

$$\frac{18}{r^2} = 2 - \frac{32}{R^2} \Rightarrow R^2 = \frac{18R^2}{2R^2 - 32} = \frac{9R^2}{R^2 - 16}$$

гипотенуза, no i. гипотенуза

$$(R+r)^2 = h^2 + (R-r)^2$$

$$R^2 + 2Rr + r^2 = \frac{32(R+r)^2}{R^2} + (R-r)^2$$

$$R^2(R^2 + 2Rr + r^2) = 32(R+r)^2 + (R-r)^2 R^2$$

$$h = (R+r) \sin \alpha.$$

$$\sin \alpha = \sqrt{1 - \cos^2 \alpha} = \sqrt{1 - \frac{(2R^2 - 64)^2}{4R^4}} = \sqrt{\frac{4R^4 - (2R^2 - 64)^2}{4R^4}} = \sqrt{\frac{32}{R^2}}$$

$$h^2 = (R+r)^2 \cdot \frac{32}{R^2}$$

$$R^2(R^2 + 2Rr + r^2) = 32(R^2 + 2Rr + r^2) + (R-r)^2 R^2$$

$$\sin \alpha = \sqrt{1 - \cos^2 \alpha} = \sqrt{1 - 1 + \frac{64}{R^2} - \frac{32^2}{R^4}} = \sqrt{\frac{(8R-32)(8R+32)}{R^4}}$$

$$\sin \alpha = \sqrt{\frac{(8R-32)(8R+32)}{R^4}}$$

$$h^2 = (R+r)^2 \cdot \frac{(8R-32)(8R+32)}{R^4}$$

$$(R^3 + R^2r - 32R - 32r - R^3 + R^2r) \cdot (R^3 + R^2r - 32R - 32r + R^3 - R^2r) = 0$$

$$(2R^2r - 32(R+r)) \cdot (2R^3 - 32(R+r)) = 0$$

$$R^2r - 16R - 16r = 0$$

$$r(R^2 - 16) - 16R = 0$$

$$\frac{3R^2(R^2 - 16)}{\sqrt{R^2 - 16}} - 16R = 0$$

$$3R^2\sqrt{R^2 - 16} - 16R = 0 \quad | : 3R$$

$$(\sqrt{R^2 - 16})^2 = \left(\frac{16}{3}\right)^2$$

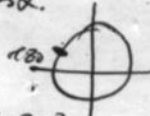
$$R^2 - 16 = \frac{256}{9}$$

$$R^2 = \frac{256 + 144}{9} = \frac{400}{9}$$

$$R = \frac{20}{3} \Rightarrow r = \sqrt{\frac{9 \cdot \frac{400}{9}}{\frac{400}{9} - 16}} = \sqrt{\frac{400 \cdot 9}{256}} = \frac{20 \cdot 3}{16} = \frac{15}{4}$$

$$\text{Ответ: } R = \frac{20}{3}; r = \frac{15}{4}$$

$$\cos(180^\circ - \alpha) = -\cos \alpha.$$



$$2R^3 - 32R - 32r = 0$$

$$2R^3 - 32R = \frac{96R}{\sqrt{R^2 - 16}} \Rightarrow 0 : R \quad \text{OD3: } (R-4)(R+4) > 0$$

$$2R^2\sqrt{R^2 - 16} - 32\sqrt{R^2 - 16} - 96 = 0$$

$$\text{высб } t = \sqrt{R^2 - 16} \Rightarrow t^2 - R^2 + 16 \Rightarrow R^2 = t^2 + 16 \quad R > 4$$

$$24(t^2 + 16) - 32t - 96 = 0$$

$$2t^3 + 32t - 32t - 96 = 0$$

$$t^3 = 48 \Rightarrow t = \sqrt[3]{48} \approx 3.63 < 4$$