

(1) $d = 0.1323 \text{ mm}$

(2) a) $\frac{r_a}{r_i} = \sqrt{2}$

b) $\frac{M_a}{M_i} = \sqrt{2}$

(3) $O = 415.4 \text{ cm}^2$
 $V = 115.1 \text{ cm}^3$

(4) 36.34%