

(1) a)  $V = 3142\text{cm}^2$   
b)  $h = 15.9\text{cm}$   
c)  $d = 25.23\text{cm}$

(2)  $m = 0.95\text{kg}$

(3) a)  $V_1 = 2a^3\pi$  ;  $V_2 = 1.5a^3\pi$   
b)  $O_1 = 6a^2\pi$  ;  $O_2 = 7.5a^2\pi$

(4)  $m = 1.5\text{kg}$

(5)  $V_{sp} : V_{st} = 8 : 19$