Ответы

Замечания. Используется соотношение: $tg\,3\pi/8=\left(1+\sqrt{2}\right)$.

1	$p^2\left(3+4\sqrt{2}\right)/6$; $(\pi/2)+2\ln\left(1+\sqrt{2}\right)$; $3\pi c^4/8a$; 76/3; $p^5/21$; (1/2; 1; 2).
2	9,9 – 8,1lg *e*; $p^2\pi/4$; 16/9; $20-3\pi$; $16(3\pi-4)/9$; 84.
3	$2\arcsin(2/\sqrt{5})$; $8a$; $\left(\pi a^2\right)/\sqrt{2}$; 313,2; $(1024a^4)/35$; (0; 0; 0,694).
4	$8(26/3-\ln 3)$; $4a\sqrt{3}$; 1/24; $(128a^5)/55$; $\left(17\sqrt{17}-2\sqrt{2}\right)/6$; $\boldsymbol{\left(6/\pi,\ 2\left(3-2\pi^2\right)/\pi^2,\ 3\left(8\pi^2-3\right)/8\pi^2\right)}$.
5	a^2; $\left(\pi/\sqrt{2}\right)+2\left(13\sqrt{13}-8\right)/27$; 81/4; $\pi a^2\left(\sqrt{2}-1\right)/2$; 584/105; $5\left(1+\sqrt{2}\right)/6$.
6	$2\pi-4/3$; $\left(2\pi-3\sqrt{3}\right)/8$; 24π; $8a^2$; 9/4; (11/24, 11/24, 25/24).
7	$\pi a^2/4$; $\sqrt{3}$; 8π; $((25\pi+48)/14;-1)$; $\pi/4$; $24\sqrt{2}\pi^3$.
8	$3/\ln 2-4/3$; 19/3; $125\left(3\pi+5\sqrt{2}-8\right)/36$; $4(2+\pi)/\sqrt{2}$; $a^2b^2/2$; (2/5; 2/5; 7/30).
9	11π; $a\ln 2$; π; $\left(0; a\left(e^4+4e^2-1\right)/\left(4e^3-4e\right)\right)$; $65\pi/8$; $80\pi/3$.
10	$4a^3/3$; $670/27+10\sqrt{5}$; 344/105; $(124/75; 196/45)$; $\left(6\sqrt{3}-2+3\ln\left(1+2/\sqrt{3}\right)\right)a/16$; 11π.
11	$2\pi+4/3$; 2; $9a^3\left(\sqrt{3}+2\pi/3\right)$; (5*a*/14; 3*a*/28); $ab\left(a^2+ab+b^2\right)/(3a+3b)$; $4\pi R^6/9$.
12	$a^2(15/8-2\ln 2)$; 8; $2\pi ab\left(2\sqrt{2}-1\right)/3$; 39/280; $\left(10\sqrt{10}-2\sqrt{2}+26\right)/3+9\ln 3$; (0; 0; 3*h*/8).
13	2; $3\pi R^2$; 35/3; $\sqrt{2}$; $\left(\pi^2-8\ln 2+12\pi\right)/16$; 4π.

14	πa^2; $\left(56\sqrt{5}\right)/3$; 7/4; $a^2(20-3\pi)/9$; $3\sqrt{3}a^3/2$; $\left(0; 9\sqrt{2}(2+\pi)/32; 9\pi/16\right)$.
15	1,25; πa; $2\pi a^2$; 26; $2\pi^2 a^3\left(1+2\pi^2\right)$; (0; 0; 3*a*/8).
16	$\frac{\pi}{2}-1$; $4a$; $\frac{14\pi}{3}$; $\left(\frac{32a\left(6-\pi^2\right)}{3\pi^3}; \frac{8a\left(\pi^4-12\pi^2+48\right)}{3\pi^4}\right)$; $\frac{1}{60}$; $\frac{\pi}{2}\left(1+\sqrt{2}\right)$.
17	$1-\ln 2$; $p\left(\sqrt{2}+\ln\left(1+\sqrt{2}\right)\right)$; $\pi/6$; 100; 33/140; $a^2\sqrt{4\pi^2a^2+h^2}$; (1; 1; 5/3); $2\pi R$.
18	$\pi a^2/4$; $5a\left[1+\left(\ln\left(2+\sqrt{3}\right)\right)/2\sqrt{3}\right]$; $\pi\sqrt{2}$; 63,75; $\left(\frac{3\pi}{16};0\right)$; $\ln\frac{\left(3+\sqrt{10}\right)^2\left(1+\sqrt{10}\right)}{\left(\sqrt{2}+1\right)\left(2+\sqrt{5}\right)}$; $\frac{112\pi}{5}$; $\frac{232}{15}$.
19	$\frac{5}{8}\left(\arcsin 2/\sqrt{5}-\arcsin 1/\sqrt{5}\right)-\frac{\ln 2}{2}$; $\ln\frac{\pi}{2}$; πabR^2; $18\pi(2-\pi/2)$; (6/5; 9/20); $R/\sqrt{2}$; $\pi h^5/20$; 4.
20	$a^2/3$; $98p^2/81$; $243\pi/16$; $24a^2/5$; $4a^2\ln 2$; $2p^2\left(2\sqrt{2}-1\right)/3$; $224\pi/3$; $\left(\left(250\sqrt{5}-2\right)/\left(175\sqrt{5}+7\right); 0; 0\right)$.
21	$2-1/\ln 2$; 2; $19\pi/3$; $16\sqrt{2}\left(7\sqrt{7}-1\right)/3$; $17{,}1\sqrt{5}$; $431\pi/420$.
22	$a^2(\pi-2)/2$; $a\ln\left(\sqrt{2}+1\right)$; 640/9; $\left(-\frac{a}{5}\cdot\frac{2e^{2\pi}+e^{\pi}}{e^{\pi}-e^{\pi/2}}; \frac{a}{5}\cdot\frac{e^{2\pi}-2e^{\pi}}{e^{\pi}-e^{\pi/2}}\right)$; $\pi/10$; $\pi/2$.
23	$5\pi/3+10\sqrt{3}$; $\sqrt{6}+\ln\left(\sqrt{2}+\sqrt{3}\right)$; 2; $56\pi a^2/9$; $a^2h^4/60$; $\left(\sqrt{3}R^4\right)/32$.
24	$a^2(4-\pi)/8$; $4\left(2\sqrt{2}-1\right)/3$; 4π; $\left(52\sqrt{3}\right)/3$; 208/15;

	$J_1 = \frac{b^2(b+3a)}{6}$, $J_2 = \frac{a^2(a+3b)}{6}$.
25	$\left(e^2+1\right)/4$; 128/21; $2a^2$; $5a^5/12$; $2\left(e^2-1\right)+\left(\pi e^2\right)/2$; $\left(4/3;\left(3\sqrt{2}/2\right);3\right)$.
26	4,5; $\ln 1{,}5 + 5/12$; $a^2(20-3\pi)/9$; 17/6; $4\left(125-54\sqrt{2}\right)/7$; $\left(0;0;\frac{4a}{3\pi\left(2-\sqrt{2}\right)}\right)$.
27	$3a^2\pi/2$; $\ln 3 - 1/2$; $a^2/\sqrt{2}$; $8R^5/5$; $\frac{3}{2}\cdot\frac{\sqrt{3}+\ln\left(\sqrt{2}/\left(1+\sqrt{3}\right)\right)}{3\sqrt{3}-2\sqrt{2}}$; $\frac{2\pi\left(6\sqrt{3}+1\right)}{15}$.
28	$a^2/2$; $\sqrt{2}(\pi-1)$; 40/3; $56\pi/9$; (5*a*/8; 0; 0); $\frac{4\pi}{15}\left(4\sqrt{2}-5\right)$.
29	$8a^2\pi^3$; $\pi^3/3$; $\pi\sqrt{2}\left(\sqrt{6}+\ln\left(\sqrt{2}+\sqrt{3}\right)\right)/3$; $(R\sin\alpha)/\alpha$; $17\pi/30$; $64\sqrt{2}a^4/15$.
30	$5a^4\pi/32$; $\left(19+8\sqrt{2}\right)/3$; $\pi-4/3$; $(0;2a/\pi;b\pi/2)$; $4\pi\left(R^5-r^5\right)/15$; $2\pi RH\left(R^2+H^2/3\right)$.