

№ задания	Правильные ответы
1	$\frac{1}{3(2-3x)}$
2	$\frac{\left(\frac{3}{2}\right)^x}{\ln 1,5} + C$
3	$\sqrt[3]{3x+1} + C$
4	$\arcsin \frac{x+1}{2} + C$
5	$-\frac{1}{x+6} + C$
6	$t = \sqrt{x+1}$
7	$u = x; du = dx; v = -\frac{1}{2(x^2+1)}; dv = \frac{xdx}{(x^2+1)^2}$
8	$x^3 - x^2 - 4x + 4 = (x-1)(x+2)(x-2);$ $x^4 - 6x^2 + 8 = (x+2)(x+\sqrt{2})(x-2)(x-\sqrt{2})$ $x^3 - 2x^2 - 3x = x(x-3)(x+1)$
9	$\frac{Ax+B}{x^2+4} + \frac{C}{x+1} + \frac{D}{(x+1)^2}$
10	$x^2 + x + 1$
11	A=1; B=-2; C=2; D=0.
12	$\frac{1}{9} \ln x - \frac{1}{18} \ln x^2+9 + C$
13	$\frac{2}{\sqrt{5}} \operatorname{arctg}\left(\frac{tg\frac{\pi}{2}}{\sqrt{5}}\right) + C$
14	$tgx - ctgx + C$
15	A=6; B=8,49.
16	$x = 2 \cos t$
17	1/2
18	$\frac{1}{42}$
19	$\int_1^2 \frac{4t^4}{t^2+1} dt$
20	$\frac{\pi}{4}$
21	$\frac{\pi}{2} - 1$
22	$\frac{3}{4} \sqrt[3]{x^4} \cdot \ln x \Big _1^2 - \frac{3}{4} \int_1^2 \sqrt[3]{x} \cdot dx$
23	10
24	$\int_0^{\pi/2} (2x - x^2) \cdot \sin^6 x dx$ $\int_0^{\pi/2} (2x - x^2) \cdot \cos^5 x dx$ $\int_0^{\pi/2} (x^2 + 2x + \cos^2 x) dx$
25	$\int_{-3}^3 \frac{8x}{(4+7x^4)^3} dx \quad \int_{-3}^3 \frac{8x^7}{(4+7x^4)^3} dx$

26	$y = x^2, y = \sqrt[3]{x}, x = 0, x = 1; S = \int_0^1 (\sqrt[3]{x} - x^2) dx.$ $y = x^2, y = \sqrt{x}, x = 0, x = 1; S = \int_0^1 (\sqrt{x} - x^2) dx.$ $y = -x^2, y = \sqrt[3]{x}, x = 0, x = 1; S = \int_0^1 (\sqrt[3]{x} + x^2) dx.$ $y = x^2, y = -\sqrt{x}, x = 0, x = 1; S = \int_0^1 (\sqrt{x} + x^2) dx.$
27	$y = 2\sqrt{x+1}; L = \int_0^3 \sqrt{1 + \frac{1}{x+1}} dx.$ $y = \frac{2}{x+1}; L = \int_0^3 \sqrt{1 + \frac{4}{(x+1)^4}} dx.$ $y = \frac{1}{\sqrt{x+1}}; L = \int_0^3 \sqrt{1 + \frac{1}{4(x+1)^3}} dx.$ $y = \frac{2}{3}\sqrt{(x+1)^3}; L = \int_0^3 \sqrt{1 + (x+1)} dx.$
28	5/12
29	$2\pi^2$
30	3/4
31	8/27
32	1/5
33	расходящимся несобственным интегралом 1-го рода
34	$\int_1^{\infty} \frac{x}{\sqrt{3x^6+5x^4+4}} dx \quad \int_1^{\infty} \frac{dx}{\sqrt{3x^4+5x^2+4}} dx$
35	3
36	сходящимся несобственным интегралом 2-го рода
37	$\int_0^1 \frac{x+1}{\sqrt[3]{x-1}}; \int_0^1 \frac{\ln(1+x^2 \cdot \sqrt{2x})}{(e^{2x}-1)^3} dx; \int_0^{\pi/3} \frac{dx}{\sqrt{(1-\cos 3x)^3}}; \int_0^{\pi/6} \frac{dx}{\sqrt[5]{\sin 5x}}.$
38	0; 3; расходится.