Практическое занятие №4

«Нахождение производной функции»

Вариант	1 Найти производную функции	2 Найти производную функции	3 Найти производную функции
1	$y = (15x^8 - 45x^5 + 13\sqrt[7]{x^3} - \sqrt{13})^{14}$	$y = \dfrac{\cos\left(3x + \frac{\pi}{4}\right)}{\sqrt{1 - 2x^3}}$	$y = x \cdot arctg(5x - 4) - 3\ln(1 + 4x^{12})$
2	$y = (11x^{10} - 32x^5 + 12\sqrt[3]{x^2} - \sqrt{77})^{16}$	$y = \dfrac{\sin\left(4x - \frac{3\pi}{4}\right)}{\sqrt{2 + 3x^4}}$	$y = x \cdot arctg(5x - 4) - 3\cos(2 - 6x^{12})$
3	$y = (23x^{14} - 76x^7 + 14\sqrt[9]{x^2} - \sqrt{41})^9$	$y = \dfrac{tg\left(x - \frac{5\pi}{6}\right)}{\sqrt{2 - 4x^5}}$	$y = x \cdot arc\sin(12x - 5) - 4\ln(12 - 3x^{11})$
4	$y = (13x^8 - 45x^5 + 11\sqrt{x^3} - \sqrt{7})^{10}$	$y = \dfrac{ctg\left(2x - \frac{\pi}{6}\right)}{\sqrt{9 - 5x^{11}}}$	$y = x \cdot arc\cos(47x - 9) - 8tg(47 - 6x^{17})$
5	$y = (32x^8 - 23x^5 + 18\sqrt[4]{x^3} - \sqrt{15})^{11}$	$y = \dfrac{\ln\left(3x - \frac{\pi}{12}\right)}{\sqrt{1 - 9x^{12}}}$	$y = x \cdot arcctg(87x + 6) - 5ctg(34 - 6x^{18})$
6	$y = (36x^7 - 14x^6 + 19\sqrt[3]{x^2} - \sqrt{17})^{12}$	$y = \dfrac{\log_2\left(3x - \frac{\pi}{12}\right)}{\sqrt{2 - 7x^{16}}}$	$y = x \cdot arcctg(14x - 17) - 5 \cdot 7^{11 - 5x^{13}}$
7	$y = (24x^8 - 41x^5 + 17\sqrt[4]{x^3} - \sqrt{19})^6$	$y = \dfrac{2^{4x - \frac{\pi}{18}}}{\sqrt{2 - 7x^{16}}}$	$y = x \cdot arc\cos(11x - 6) - 2\cos(24 - 5x^{16})$
8	$y = (42x^9 - 35x^5 + 17\sqrt[4]{x^3} - \sqrt{23})^{13}$	$y = \dfrac{\log_4\left(5x - \frac{\pi}{16}\right)}{\sqrt{3 + 6x^{16}}}$	$y = x \cdot arc\cos(14x - 74) - 3 \cdot 6^{13 - 3x^{15}}$
9	$y = (16x^{10} - 34x^5 + 24\sqrt[4]{x^3} - \sqrt{27})^{15}$	$y = \dfrac{2^{2x - \frac{\pi}{14}}}{\sqrt{8 - 8x^{17}}}$	$y = x \cdot arc\sin(34x - 454) - 4tg(23 - 55x^{11})$
10	$y = (19x^{11} - 67x^7 + 12\sqrt[3]{x^2} - \sqrt{29})^{16}$	$y = \dfrac{\cos\left(5x + \frac{\pi}{56}\right)}{\sqrt{5 - 6x^{21}}}$	$y = x \cdot arcctg(57x + 12) - 6\log_2(34 - 5x^{18})$
11	$y = (15x^{13} - 45x^6 + 13\sqrt[5]{x^4} - \sqrt{39})^{17}$	$y = \dfrac{\ln\left(4x - \frac{\pi}{2}\right)}{\sqrt{8 - 4x^{13}}}$	$y = x \cdot arc\sin(24x - 7) - 4\sqrt{12 - 3x^{11}}$
12	$y = (43x^{15} - 41x^{11} + 13\sqrt[3]{x^2} - \sqrt{37})^6$	$y = \dfrac{\sin\left(5x - \frac{3\pi}{13}\right)}{\sqrt{4 + 6x^{24}}}$	$y = x \cdot arc\cos(45x - 7) - 8\ln(41 - 5x^{16})$

13	$y = (14x^{12} - 18x^8 + 45\sqrt[3]{x^2} - \sqrt{33})^7$	$y = \dfrac{\text{tg}\left(4x - \dfrac{\pi}{3}\right)}{\sqrt{6 - 6x^6}}$	$y = x \cdot arc\cos(76x - 2) - 3\log_3\left(78 - 6x^{17}\right)$
14	$y = (34x^{11} - 49x^7 + 17\sqrt[3]{x^2} - \sqrt{38})^8$	$y = \dfrac{3^{3x - \frac{\pi}{8}}}{\sqrt{9 - 9x^{16}}}$	$y = x \cdot arcctg(28x - 43) - 4\sin\left(11 - 5x^{13}\right)$
15	$y = (12x^{15} - 49x^8 + 17\sqrt[4]{x^3} - \sqrt{47})^9$	$y = \dfrac{\text{ctg}\left(3x - \dfrac{\pi}{36}\right)}{\sqrt{11 - 6x^{13}}}$	$y = x \cdot arc\sin(31x - 23) - 4\log_4\left(65 - 8x^{16}\right)$
16	$y = (10x^{12} - 35x^6 + 23\sqrt[3]{x^2} - \sqrt{22})^{10}$	$y = \dfrac{\ln\left(6x - \dfrac{\pi}{62}\right)}{\sqrt{12 - 5x^{17}}}$	$y = x \cdot arc\cos(11x - 6) - 3\sin\left(13 - 3x^{15}\right)$
17	$y = (37x^{12} - 12x^8 + 34\sqrt[3]{x^2} - \sqrt{48})^8$	$y = \dfrac{\text{tg}\left(8x - \dfrac{5\pi}{8}\right)}{\sqrt{8 - 5x^8}}$	$y = x \cdot arcctg(59x - 31) - 7\log_3\left(54 - 9x^{15}\right)$
18	$y = (33x^{12} - 43x^5 + 14\sqrt[3]{x^2} - \sqrt{53})^{11}$	$y = \dfrac{4^{4x - \frac{\pi}{4}}}{\sqrt{7 - 5x^{19}}}$	$y = x \cdot arcctg(34x - 2) - 5\sqrt{11 - 5x^{13}}$
19	$y = (31x^{11} - 43x^7 + 23\sqrt[4]{x^3} - \sqrt{57})^{12}$	$y = \dfrac{\log_5\left(6x - \dfrac{\pi}{9}\right)}{\sqrt{32 + 12x^6}}$	$y = x \cdot arctg(21x - 34) - 3\sin\left(2 + 6x^{12}\right)$
20	$y = (34x^{11} - 43x^5 + 32\sqrt[5]{x^2} - \sqrt{53})^{13}$	$y = \dfrac{\cos\left(11x + \dfrac{\pi}{411}\right)}{\sqrt{13 - 21x^4}}$	$y = x \cdot arc\sin(18x - 45) - 4 \cdot 5^{12 - 3x^{11}}$
21	$y = (21x^9 - 19x^7 + 19\sqrt[4]{x^3} - \sqrt{26})^{14}$	$y = \dfrac{\sin\left(12x - \dfrac{3\pi}{13}\right)}{\sqrt{13 + 13x^9}}$	$y = x \cdot arc\cos(21x - 8) - 2\sqrt{13 - 3x^{15}}$
22	$y = (55x^{11} - 17x^5 + 34\sqrt[5]{x^4} - \sqrt{51})^7$	$y = \dfrac{\text{ctg}\left(6x - \dfrac{\pi}{6}\right)}{\sqrt{34 - 11x^{19}}}$	$y = x \cdot arc\cos(11x - 6) - 2\ln\left(13 - 3x^{15}\right)$
23	$y = (45x^{11} + 56x^5 - 75\sqrt[3]{x^2} - \sqrt{61})^{11}$	$y = \dfrac{6^{6x - \frac{\pi}{17}}}{\sqrt{41 - 10x^4}}$	$y = x \cdot arc\sin(31x - 23) - 4\sin\left(12 - 3x^{11}\right)$
24	$y = (12x^{15} - 13x^8 + 65\sqrt[3]{x^2} - \sqrt{63})^9$	$y = \dfrac{\text{tg}\left(12x - \dfrac{5\pi}{12}\right)}{\sqrt{9 - 6x^{12}}}$	$y = x \cdot arctg(23x - 64) - 3\sqrt{1 + 4x^{12}}$
25	$y = (32x^{11} + 65x^7 - 11\sqrt[3]{x^2} - \sqrt{65})^{13}$	$y = \dfrac{\text{ctg}\left(7x - \dfrac{\pi}{7}\right)}{\sqrt{77 - 7x^{16}}}$	$y = x \cdot arctg(41x - 13) - 2 \cdot 3^{12x^3 - 47}$
26	$y = (18x^{10} - 23x^5 + 32\sqrt[3]{x^2} - \sqrt{67})^{15}$	$y = \dfrac{\sin\left(8x - \dfrac{9\pi}{13}\right)}{\sqrt{87 + 4x^{15}}}$	$y = x \cdot arcctg(8x - 12) - 5\ln\left(11 - 5x^{13}\right)$