

The DERIVATIVE

1-10

1.
$$\frac{(o + x)^2 - x^2}{o}$$

2.
$$\frac{x^2 + 2ox + o^2 - x^2}{o}$$

3.
$$\frac{2ox + o^2}{o}$$

4.
$$\frac{2ox + o^2}{o} = \frac{2ox}{o} + \frac{o^2}{o} = 2o^0x + o^1$$

5.
$$2o^0x + o^1 = 2x + o$$

6. When $o = 0$ Then $2x + o = 2x$

7. $2x$

8. Q) Is it True? :
$$\lim_{o \rightarrow 0} \frac{(o + x)^2 - x^2}{o} = 2x$$

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9.

1	$\frac{d}{dx}(x^1) = 1x^0 = 1$
2	$\frac{d}{dx}(x^2) = 2x^1 = 2x$
3	$\frac{d}{dx}(x^3) = 3x^2$
4	$\frac{d}{dx}(x^4) = 4x^3$
5	$\frac{d}{dx}(x^5) = 5x^4$
6	$\frac{d}{dx}(x^6) = 6x^5$
7	$\frac{d}{dx}(x^7) = 7x^6$
8	$\frac{d}{dx}(x^8) = 8x^7$
9	$\frac{d}{dx}(x^9) = 9x^8$
10	$\frac{d}{dx}(x^{10}) = 10x^9$
11	$\frac{d}{dx}(x^{11}) = 11x^{10}$

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10.

n	Derivative of (xⁿ)
1	1
2	2x
3	3x²
4	4x³
5	5x⁴
6	6x⁵
7	7x⁶
8	8x⁷
9	9x⁸
10	10x⁹
11	11x¹⁰
12	12x¹¹
13	13x¹²
14	14x¹³
15	15x¹⁴

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$$16 \qquad 16x^{15}$$

$$17 \qquad 17x^{16}$$

$$18 \qquad 18x^{17}$$

$$19 \qquad 19x^{18}$$

$$20 \qquad 20x^{19}$$

$$21 \qquad 21x^{20}$$

$$22 \qquad 22x^{21}$$

$$23 \qquad 23x^{22}$$

$$24 \qquad 24x^{23}$$

$$25 \qquad 25x^{24}$$

$$26 \qquad 26x^{25}$$

$$27 \qquad 27x^{26}$$

$$28 \qquad 28x^{27}$$

$$29 \qquad 29x^{28}$$

$$30 \qquad 30x^{29}$$

$$31 \qquad 31x^{30}$$

$$32 \qquad 32x^{31}$$

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33	$33x^{32}$
34	$34x^{33}$
35	$35x^{34}$
36	$36x^{35}$
37	$37x^{36}$
38	$38x^{37}$
39	$39x^{38}$
40	$40x^{39}$
41	$41x^{40}$
42	$42x^{41}$
43	$43x^{42}$
44	$44x^{43}$
45	$45x^{44}$
46	$46x^{45}$
47	$47x^{46}$
48	$48x^{47}$
49	$49x^{48}$

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50	$50x^{49}$
51	$51x^{50}$
52	$52x^{51}$
53	$53x^{52}$
54	$54x^{53}$
55	$55x^{54}$
56	$56x^{55}$
57	$57x^{56}$
58	$58x^{57}$
59	$59x^{58}$
60	$60x^{59}$
61	$61x^{60}$
62	$62x^{61}$
63	$63x^{62}$
64	$64x^{63}$
65	$65x^{64}$
66	$66x^{65}$

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$$67 \qquad 67x^{66}$$

$$68 \qquad 68x^{67}$$

$$69 \qquad 69x^{68}$$

$$70 \qquad 70x^{69}$$

$$71 \qquad 71x^{70}$$

$$72 \qquad 72x^{71}$$

$$73 \qquad 73x^{72}$$

$$74 \qquad 74x^{73}$$

$$75 \qquad 75x^{74}$$

$$76 \qquad 76x^{75}$$

$$77 \qquad 77x^{76}$$

$$78 \qquad 78x^{77}$$

$$79 \qquad 79x^{78}$$

$$80 \qquad 80x^{79}$$

$$81 \qquad 81x^{80}$$

$$82 \qquad 82x^{81}$$

$$83 \qquad 83x^{82}$$

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84	$84x^{83}$
85	$85x^{84}$
86	$86x^{85}$
87	$87x^{86}$
88	$88x^{87}$
89	$89x^{88}$
90	$90x^{89}$
91	$91x^{90}$
92	$92x^{91}$
93	$93x^{92}$
94	$94x^{93}$
95	$95x^{94}$
96	$96x^{95}$
97	$97x^{96}$
98	$98x^{97}$
99	$99x^{98}$
100	$100x^{99}$

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