

CIEN DERIVADAS RESUELTAS Y SIMPLIFICADAS

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|----|---|---|
| 1  | $f(x) = 0$                                    | $f'(x) = 0$   |
| 2  | $f(x) = -7$                                   | $f'(x) = 0$   |
| 3  | $f(x) = -7x$                                  | $f'(x) = -7$  |
| 4  | $f(x) = -5x + 2$                              | $f'(x) = -5$  |
| 5  | $f(x) = x^5 - x^3 + 3$                        | $f'(x) = 5x^4 - 3x^2$   |
| 6  | $f(x) = 2x^7 - 3x^6 + 3x^3 - 4x^2 - 7$        | $f'(x) = 14x^6 - 18x^5 + 9x^2 - 8x$   |
| 7  | $f(x) = \frac{x-3}{2}$                        | $f(x) = \frac{x}{2} - \frac{3}{2}$<br>$f'(x) = \frac{1}{2}$   |
| 8  | $f(x) = -\frac{x^3+x-1}{2}$                   | $f(x) = -\frac{x^3}{2} - \frac{x}{2} + \frac{1}{2}$<br>$f'(x) = -\frac{3x^2}{2} - \frac{1}{2}$  |
| 9  | $f(x) = -\frac{3}{2}x^3 + \frac{2}{5}x^2 - 4$ | $f'(x) = -\frac{9}{2}x^2 + \frac{4}{5}x$  |
| 10 | $f(x) = \frac{3}{x^2}$                        | $f(x) = 3 \cdot x^{-2}$<br>$f'(x) = -6x^{-3} = \frac{-6}{x^3}$  |
| 11 | $f(x) = -\frac{2}{x^3} + \frac{3}{x^2} - 4x$  | $f(x) = -2 \cdot x^{-3} + 3 \cdot x^{-2} - 4x$<br>$f'(x) = +6 \cdot x^{-4} - 6 \cdot x^{-3} - 4$<br>$f'(x) = \frac{6}{x^4} - \frac{6}{x^3} - 4$ |

12

$$f(x) = \frac{x^2 - 1}{(x+1)^2}$$

$$f(x) = \frac{(x+1) \cdot (x-1)}{(x+1) \cdot (x+1)}$$

$$f(x) = \frac{(x-1)}{(x+1)}$$

$$f'(x) = \frac{(x-1)' \cdot (x+1) - (x-1) \cdot (x+1)'}{(x+1)^2}$$

$$f'(x) = \frac{(x+1) \cdot 1 - (x-1) \cdot 1}{(x+1)^2} = \frac{x+1-x+1}{(x+1)^2} = \frac{2}{(x+1)^2}$$

$$f'(x) = \frac{2}{(x+1)^2}$$

13

$$f(x) = \frac{5x^4 - 3x^3}{x^5}$$

$$f(x) = +5 \frac{x^4}{x^5} - 3 \frac{x^3}{x^5}$$

$$f'(x) = +5x^{4-5} - 3x^{3-5}$$

$$f(x) = +5x^{-1} - 3x^{-2}$$

$$f'(x) = -5x^{-2} + 6x^{-3}$$

$$f'(x) = -\frac{5}{x^2} + \frac{6}{x^3}$$

14

$$f(x) = \sqrt{x^3}$$

$$f(x) = x^{\frac{3}{2}}$$

$$f'(x) = \frac{3}{2} x^{\frac{3}{2} - \frac{2}{2}}$$

$$f'(x) = \frac{3}{2} x^{\frac{1}{2}}$$

$$f'(x) = \frac{3}{2} \sqrt{x}$$

15

$$f(x) = \frac{1}{\sqrt{x^3}}$$

$$f(x) = \frac{1}{x^{\frac{3}{2}}}$$

$$f(x) = x^{-\frac{3}{2}}$$

$$f'(x) = -\frac{3}{2} x^{-\frac{3}{2} - \frac{2}{2}}$$

$$f'(x) = -\frac{3}{2} x^{-\frac{5}{2}}$$

$$f'(x) = -\frac{3}{2} \frac{1}{\sqrt[2]{x^5}}$$

$$f'(x) = -\frac{3}{2} \frac{1}{x^2 \sqrt{x}}$$

16

$$f(x) = \sqrt{x^3} - \sqrt[3]{x^5}$$

$$f(x) = x^{\frac{3}{2}} - x^{\frac{5}{3}}$$

$$f'(x) = \frac{3}{2} \cdot x^{\frac{3}{2} - \frac{2}{2}} - \frac{5}{3} x^{\frac{5}{3} - \frac{3}{3}}$$

$$f'(x) = \frac{3}{2} \cdot x^{\frac{1}{2}} - \frac{5}{3} x^{\frac{2}{3}}$$

$$f'(x) = \frac{3}{2} \cdot \sqrt{x} - \frac{5}{3} \sqrt[3]{x^2}$$

17

$$f(x) = -3\sqrt{x} - 2\sqrt[3]{x^2}$$

$$f(x) = -3x^{\frac{1}{2}} - 2x^{\frac{2}{3}}$$

$$f'(x) = -\frac{3}{2} x^{\frac{1}{2} - \frac{2}{2}} - \frac{4}{3} x^{\frac{2}{3} - \frac{3}{3}}$$

$$f'(x) = -\frac{3}{2} \cdot x^{-\frac{1}{2}} - \frac{4}{3} x^{-\frac{1}{3}}$$

$$f'(x) = \frac{-3}{2\sqrt{x}} - \frac{4}{3\sqrt[3]{x}}$$

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| 18 | $f(x) = -\frac{2}{3}\sqrt{x^3} - \sqrt{15x} - \sqrt[3]{x^5}$ | $f(x) = -\frac{2}{3}x^{\frac{3}{2}} - 15^{\frac{1}{2}}x^{\frac{1}{2}} - x^{\frac{5}{3}}$ $f'(x) = -\frac{2}{3} \cdot \frac{3}{2}x^{\frac{3}{2}-\frac{2}{2}} - \sqrt{15} \frac{1}{2}x^{\frac{1}{2}-\frac{2}{2}} - \frac{5}{3}x^{\frac{5}{3}-\frac{3}{3}}$ $f'(x) = -x^{\frac{1}{2}} - \sqrt{15} \frac{5}{3}x^{-\frac{1}{2}} - x^{\frac{2}{3}}$ $f'(x) = -\sqrt{x} - \frac{\sqrt{15}}{2\sqrt{x}} - \frac{5}{3}\sqrt[3]{x^2}$ |
| 19 | $f(x) = -\frac{3}{2}\sqrt{x^3} - 2x^5 - 5x^2$                | $f(x) = -\frac{3}{2}x^{\frac{3}{2}} - 2x^5 - 5x^2$ $f'(x) = -\frac{3}{2} \cdot \frac{3}{2}x^{\frac{3}{2}-1} - 10x^4 - 10x$ $f'(x) = -\frac{9}{4}\sqrt{x} - 10x^4 - 10x$  |
| 20 | $f(x) = \frac{\sqrt{x^3}\sqrt{x}}{2\sqrt{x}}$                | $f(x) = \frac{\sqrt{x^3}\sqrt{x}}{2\sqrt{x}} = \frac{x^{\frac{1}{2}} \cdot x^{\frac{1}{2}}}{x^{\frac{1}{2}}} = \frac{x^{\frac{1}{2}+\frac{1}{2}}}{x^{\frac{1}{2}}} = \frac{x^1}{x^{\frac{1}{2}}}$ $f(x) = x^{6-\frac{1}{2}} = x^{\frac{11}{2}}$ $f'(x) = \frac{11}{2} \cdot x^{-\frac{1}{2}} = \frac{11}{2} \cdot x^{-\frac{1}{2}}$ $f'(x) = \frac{11}{2} \cdot \frac{1}{\sqrt{x}}$  |

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| 21 | $f(x) = \frac{2\sqrt{x} + \sqrt[3]{x}}{\sqrt{x}}$ | $f(x) = \frac{2\sqrt{x} + \sqrt[3]{x}}{\sqrt{x}} = \frac{2\sqrt{x}}{\sqrt{x}} + \frac{\sqrt[3]{x}}{\sqrt{x}}$ $f(x) = \frac{2 \cdot x^{\frac{1}{2}}}{x^{\frac{1}{2}}} + \frac{x^{\frac{1}{3}}}{x^{\frac{1}{2}}}$ $f(x) = 2 + x^{-\frac{1}{6}}$ $f'(x) = -\frac{1}{6} x^{-\frac{7}{6}}$ $f'(x) = -\frac{1}{6x^{\frac{7}{6}}}$ |
| 22 | $f(x) = (x^5 - x^3 + 3)^4$                        | $f'(x) = 4 \cdot (x^5 - x^3 + 3)^3 \cdot (5x^4 - 3x^2)$  |
| 23 | $f(x) = (x^2 - 2)^2$                              | $f'(x) = 2 \cdot (x^2 - 2) \cdot (2x)$ $f'(x) = 4x \cdot (x^2 - 2)$ $f'(x) = 4x^3 - 8x$  |
| 24 | $f(x) = (x - 1) \cdot (x + 1)^2$                  | $f'(x) = (x + 1)^2 + (x - 1) \cdot 2 \cdot (x + 1)$ $f'(x) = x^2 + 2x + 1 + 2x^2 - 2$ $f'(x) = 3x^2 + 2x - 1$  |
| 25 | $f(x) = (x^5 - x^3 + 3)^4$                        | $f(x) = (x^5 - x^3 + 3)^4$ $f'(x) = 4 \cdot (x^5 - x^3 + 3)^3 \cdot (5x^4 - 3x^2)$   |

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| 26 | $f(x) = \sqrt{(x^5 - x^3 + 3)}$            | $f(x) = (x^5 - x^3 + 3)^{\frac{1}{2}}$ $f'(x) = \frac{1}{2} (x^5 - x^3 + 3)^{-\frac{1}{2}} \cdot (5x^4 - 3x^2)$ $f'(x) = \frac{(5x^4 - 3x^2)}{2\sqrt{x^5 - x^3 + 3}}$  |
| 27 | $f(x) = \sqrt[5]{x^5 - x^3 + 3}$           | $f(x) = (x^5 - x^3 + 3)^{\frac{1}{5}}$ $f'(x) = \frac{1}{5} (x^5 - x^3 + 3)^{-\frac{4}{5}} \cdot (5x^4 - 3x^2)$ $f'(x) = \frac{(5x^4 - 3x^2)}{5\sqrt[5]{(x^5 - x^3 + 3)^4}}$   |
| 28 | $f(x) = \frac{1}{\sqrt[5]{x^5 - x^3 + 3}}$ | $f(x) = (x^5 - x^3 + 3)^{-\frac{1}{5}}$ $f'(x) = -\frac{1}{5} (x^5 - x^3 + 3)^{-\frac{6}{5}} \cdot (5x^4 - 3x^2)$ $f'(x) = -\frac{(5x^4 - 3x^2)}{5\sqrt[5]{(x^5 - x^3 + 3)^6}} = -\frac{(5x^4 - 3x^2)}{5(x^5 - x^3 + 3)^5\sqrt[5]{(x^5 - x^3 + 3)}}$ |

29

$$f(x) = \sqrt[3]{\frac{x^5 - x^3 + 3}{x^2}}$$

$$f(x) = \left( \left( \frac{x^5 - x^3 + 3}{x^2} \right) \right)^{\frac{1}{3}}$$

$$f'(x)$$

$$= \frac{1}{3 \sqrt[3]{\left( \frac{x^5 - x^3 + 3}{x^2} \right)^2}} \cdot \frac{(5 \cdot x^4 - 3x^2) \cdot x^2 - (x^5 - x^3 + 3) \cdot 2x}{x^4}$$

$$= \frac{1}{3 \sqrt[3]{\left( \frac{x^5 - x^3 + 3}{x^2} \right)^2}} \cdot \frac{(3 \cdot x^5 - x^3 - 6)}{x^3}$$

30

$$f(x) = \sqrt[5]{\frac{x^2 + x}{x + 1}}$$

$$f(x) = \sqrt[5]{\frac{x^2 + x}{x + 1}} = \sqrt[5]{\frac{x \cdot (x + 1)}{x + 1}} = \sqrt[5]{x}$$

$$f'(x) = \frac{1}{5 \sqrt[5]{x^4}}$$

31

$$f(x) = \sqrt{\frac{x^2 + 2x + 1}{x^2 - 1}}$$

$$f(x) = \sqrt{\frac{x^2 + 2x + 1}{x^2 - 1}} = \sqrt{\frac{(x + 1) \cdot (x + 1)}{(x + 1) \cdot (x - 1)}} = \sqrt{\frac{(x + 1)}{(x - 1)}}$$

$$f'(x) = \frac{1}{2 \sqrt{\frac{(x + 1)}{(x - 1)}}} \cdot \frac{x - 1 - x - 1}{(x - 1)^2} = -\frac{1}{\sqrt{\frac{(x + 1)}{(x - 1)}}} \cdot \frac{1}{(x - 1)^2} = -\frac{1}{\sqrt{x^2 - 1}}$$

$$\frac{1}{(x - 1)}$$

$$f'(x) = \frac{-1}{\sqrt{x^2 - 1} \cdot (x - 1)}$$

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| 32 | $f(x) = \sqrt{\frac{x^2-1}{x^2-2x+1}}$ | $f(x) = \sqrt{\frac{x^2-1}{x^2-2x+1}} = \sqrt{\frac{(x+1) \cdot (x-1)}{(x-1) \cdot (x-1)}} = \sqrt{\frac{(x+1)}{(x-1)}}$ $f'(x) = \frac{1}{2\sqrt{\frac{(x+1)}{(x-1)}}} \cdot \frac{x-1-x-1}{(x-1)^2} = -\frac{1}{\sqrt{\frac{(x+1)}{(x-1)}}} \cdot \frac{1}{(x-1)^2} = -\frac{1}{\sqrt{x^2-1} \cdot (x-1)}$ $f'(x) = \frac{-1}{\sqrt{x^2-1} \cdot (x-1)}$ |
| 33 | $f(x) = e^{x+1}$                       | $f'(x) = e^{x+1}$  |
| 34 | $f(x) = -3 \cdot e^{x+1}$              | $f'(x) = -3 \cdot e^{x+1}$   |
| 35 | $f(x) = 7 \cdot e^{x^2+1}$             | $f'(x) = 7 \cdot e^{x^2+1} \cdot 2x = 14x \cdot e^{x^2}$   |
| 36 | $f(x) = -3 \cdot e^{x^2+x-1}$          | $f'(x) = -3 \cdot (2x+1) e^{x^2+x-1}$  |
| 37 | $f(x) = \sqrt{e^x}$                    | $f'(x) = \frac{e^x}{2\sqrt{e^x}}$  |
| 38 | $f(x) = \sqrt{3e^{x+1}}$               | $f'(x) = \frac{3e^{x+1}}{2\sqrt{3e^{x+1}}}$  |
| 39 | $f(x) = -\frac{2}{\sqrt{e^x}}$         | $f(x) = -2 \cdot (e^x)^{-\frac{1}{2}}$ $f'(x) = \frac{+2}{2} \cdot (e^x)^{-\frac{3}{2}} \cdot e^x$ $f'(x) = \frac{1}{\sqrt{e^x}}$  |
| 40 | $f(x) = e^{x+1} - 3e^x + 2e^{x^3}$     | $f'(x) = e^{x+1} - 3e^x + 6x^2 e^{x^3}$  |
| 41 | $f(x) = 3^{2x+1}$                      | $f'(x) = 3^{2x+1} \cdot \ln 3 \cdot 2$   |
| 42 | $f(x) = 7^{x-1}$                       | $f'(x) = 7^{x-1} \cdot \ln 7$  |



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| 43 | $f(x) = 7^{x^2-1}$                  | $f'(x) = 7^{x^2-1} \cdot \ln 7 \cdot 2x$  |
| 44 | $f(x) = -\frac{1}{\sqrt{2^x}}$      | $f(x) = -(2^x)^{-\frac{1}{2}}$<br>$f'(x) = \frac{1}{2} (2^x)^{-\frac{3}{2}} \ln 2 \cdot 2^x$<br>$f'(x) = \frac{\ln 2}{2\sqrt{2^x}}$                                   |
| 45 | $f(x) = 2^{x+1} - 3 \cdot 5^x$      | $f'(x) = 2^{x+1} \cdot \ln 2 - 3 \cdot (5^x \cdot \ln 5)$   |
| 46 | $f(x) = (2^{x+1} - 3 \cdot 5^x)^3$  | $f'(x) = 3 \cdot (2^{x+1} - 3 \cdot 5^x)^2 \cdot (2^{x+1} \cdot \ln 2 - 3 \cdot (5^x \cdot \ln 5))$   |
| 47 | $f(x) = \sqrt{3^{x+1}}$             | $f(x) = (3^{x+1})^{\frac{1}{2}}$<br>$f'(x) = \frac{1}{2} \cdot (3^{x+1})^{-\frac{1}{2}} \cdot 3^{x+1} \cdot \ln 3$<br>$f'(x) = \frac{3^{x+1} \ln 3}{2\sqrt{3^{x+1}}}$ |
| 48 | $f(x) = 7^{\sqrt{x+1}}$             | $f'(x) = 7^{\sqrt{x+1}} \cdot \ln 7 \cdot \frac{1}{2\sqrt{x+1}}$  |
| 49 | $f(x) = \frac{e^{3x} + e^{x^2}}{3}$ | $f'(x) = \frac{e^{3x} \cdot 3}{3} + \frac{e^{x^2} \cdot 2x}{3}$<br>$f'(x) = e^{3x} + \frac{e^{x^2} \cdot 2x}{3}$  |

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| 50 | $f(x) = \frac{7x^2}{x^3}$        | $f'(x) = \frac{7x^2 \cdot \ln 7 \cdot 2x \cdot x^3 - 7x^2 \cdot 3x^2}{x^6}$ $f'(x) = \frac{7x^2 \cdot (\ln 7 \cdot 2x^2 - 3)}{x^4}$   |
| 51 | $f(x) = \frac{e^{x^2}}{x^3}$     | $f'(x) = \frac{e^{x^2} \cdot 2x \cdot x^3 - e^{x^2} \cdot 3x^2}{x^6} = \frac{x^2(e^{x^2} \cdot 2x^2 - e^{x^2} \cdot 3)}{x^6} =$ $\frac{(e^{x^2} \cdot 2x^2 - e^{x^2} \cdot 3)}{x^4}$ $f'(x) = \frac{e^{x^2} \cdot (2x^2 - 3)}{x^4}$ |
| 52 | $f(x) = \sqrt{\frac{7x^2}{x^3}}$ | $f'(x) = \frac{1}{2 \cdot \sqrt{\frac{7x^2}{x^3}}} \cdot \frac{7x^2 \cdot \ln 7 \cdot 2x \cdot x^3 - 7x^2 \cdot 3x^2}{x^6}$   |
| 53 | $f(x) = \ln(x + 3)$              | $f'(x) = \frac{1}{x+3}$   |
| 54 | $f(x) = 7x + \ln(x - 3)$         | $f'(x) = 7 + \frac{1}{x-3}$   |
| 55 | $f(x) = \ln(x^2 - 3x + 2)$       | $f'(x) = \frac{1}{x^2 - 3x + 2} \cdot (2x - 3)$   |
| 56 | $f(x) = \frac{1}{\ln(x-1)}$      | $f'(x) = \frac{-\frac{1}{(x-1)}}{(\ln(x-1))^2} = -\frac{1}{(x-1)((\ln(x-1))^2)}$  |

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| 57 | $f(x) = \ln \sqrt{\frac{x^2-1}{x^2-2x+1}}$          | $f(x) = \ln \sqrt{\frac{x^2-1}{x^2-2x+1}} =$ $\ln \sqrt{\frac{(x-1) \cdot (x+1)}{(x-1) \cdot (x-1)}} = \ln \sqrt{\frac{(x+1)}{(x-1)}}$ $f'(x) = \frac{1}{\sqrt{\frac{(x+1)}{(x-1)}}} \cdot \frac{1}{2} \frac{x-1-x-1}{\sqrt{\frac{(x+1)}{(x-1)}}} = \dots$ $\frac{-2}{\frac{(x+1)}{(x-1)} \cdot 2 \cdot (x-1)^2} = -\frac{1}{x^2-1}$ $f'(x) = -\frac{1}{x^2-1}$ |
| 58 | $f(x) = \ln \left( \sqrt{(x^5 - x^3 + 3)} \right)$  | $f'(x) = \frac{1}{\sqrt{(x^5 - x^3 + 3)}} \cdot \frac{1}{2\sqrt{(x^5 - x^3 + 3)}} (5x^4 - 3x^2)$ $f'(x) = \frac{5x^4 - 3x^2}{(x^5 - x^3 + 3)}$  |
| 59 | $f(x) = \ln \left( \frac{e^x - 1}{e^x + 1} \right)$ | $f'(x) = \frac{1}{\frac{e^x - 1}{e^x + 1}} \cdot \frac{e^x \cdot (e^x + 1) - e^x \cdot (e^x - 1)}{(e^x + 1)^2}$ $f'(x) = \frac{+2e^x}{e^{2x} - 1}$  |
| 60 | $f(x) = \log_3(x + 2)$                              | $f'(x) = \frac{u'}{u} \log_a e$ $f'(x) = \frac{1}{x + 2} \log_3 e$  |
| 61 | $f(x) = \log(x - 3)^2$                              | $f'(x) = \frac{2 \cdot (x-3)}{(x-3)^2 \cdot \ln 10}$  |
| 62 | $f(x) = \text{sen}(x + 1)$                          | $f'(x) = \text{cos}(x + 1)$   |

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| 63 | $f(x) = \text{sen}(2x^3 + 2x^2)^2$                     | $f'(x) = 2 \cdot \text{sen}(2x^3 + 2x^2) \cdot \cos(2x^3 + 2x^2) (6x^2 + 4x)$  |
| 64 | $f(x) = \text{sen}(x + 1) + 5x$                        | $f'(x) = \cos(x + 1) + 5$  |
| 65 | $f(x) = \sqrt{\text{sen}(x + 1)}$                      | $f(x) = \text{sen}(x + 1)^{\frac{1}{2}}$<br>$f'(x) = \frac{1}{2} \text{sen}(x + 1)^{-\frac{1}{2}} \cdot \cos(x + 1)$<br>$f'(x) = \frac{\cos(x+1)}{2 \cdot \sqrt{\text{sen}(x+1)}}$ |
| 66 | $f(x) = \cos(3x + 3)$                                  | $f'(x) = -\sin(3x + 3) \cdot 3$<br>$f'(x) = -3\sin(3x + 3)$  |
| 67 | $f(x) = \cos(3x^2 + 3x)$                               | $f'(x) = -\sin(3x^2 + 3x) \cdot (6x + 3)$<br>$f'(x) = -3 \cdot \sin(3x^2 + 3x) \cdot (3x + 1)$   |
| 68 | $f(x) = \frac{1}{\text{sen}(x+1)}$                     | $f'(x) = -\frac{\cos(x+1)}{(\text{sen}(x+1))^2}$   |
| 69 | $f(x) = \frac{1}{\cos x} + \frac{1}{\text{sen}(x+1)}$  | $f'(x) = \frac{\text{sen } x}{(\cos x)^2} - \frac{\cos(x+1)}{(\text{sen}(x+1))^2}$   |
| 70 | $f(x) = \frac{1}{\text{sen } x} - \frac{1}{\cos(x-1)}$ | $f'(x) = \frac{-\cos x}{(\text{sen } x)^2} - \frac{\text{sen}(x+1)}{(\cos(x-1))^2}$  |
| 71 | $f(x) = \sqrt[3]{\cos(3x + 3)}$                        | $f'(x) = \frac{1}{\sqrt[3]{(\cos(3x+3))^2}} \cdot -\text{sen}(3x + 3) \cdot 3$<br>$f'(x) = -\frac{\text{sen}(3x+3)}{\sqrt[3]{(\cos(3x+3))^2}}$                                     |

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| 72 | $f(x) = \frac{1}{\sin(x+1)} + (x^5 - x^3 + 3)^4$ | $f'(x) = -\frac{\cos(x+1)}{(\sin(x+1))^2} + 4 \cdot (x^5 - x^3 + 3)^3 \cdot (5x^4 - 3x^2)$ |
| 73 | $f(x) = \ln(x-1) + e^{x+1}$                      | $f'(x) = \frac{1}{x-1} + e^{x+1}$  |
| 74 | $f(x) = e^{x-3} + \cos(x+1) - x^2$               | $f'(x) = e^{x-3} - \sin(x+1) - 2x$   |
| 75 | $f(x) = \tan(x-5)$                               | $f'(x) = \sec^2(x-5)$  |
| 76 | $f(x) = \tan(x^3 + 3)$                           | $f'(x) = \sec^2(x^3 + 3) \cdot 3x^2$   |
| 77 | $f(x) = -\tan(-5x^2 - 7)$                        | $f'(x) = -\sec^2(-5x^2 - 7) \cdot (-10x)$<br>$f'(x) = \sec^2(-5x^2 - 7) \cdot 10x$         |
| 78 | $f(x) = \frac{1}{\tan(x-5)}$                     | $f'(x) = \frac{-\sec^2(x-5)}{(\tan(x-5))^2}$   |
| 79 | $f(x) = -\frac{3}{\tan(x+2)}$                    | $f'(x) = \frac{3 \cdot \sec^2(x-5)}{(\tan(x+2))^2}$  |
| 80 | $f(x) = \sqrt{\tan(x-5)}$                        | $f'(x) = \frac{\sec^2(x-5)}{2 \cdot \sqrt{\tan(x-5)}}$                                     |
| 81 | $f(x) = \arcsen(x^2 - 3)$                        | $f'(x) = \frac{2x}{\sqrt{1 - (x^2 - 3)^2}}$  |
| 82 | $f(x) = 3x + \arcsen(3x^3 + 3x - 7)$             | $f'(x) = 3 + \frac{9x^2 + 3}{\sqrt{1 - (3x^3 + 3x - 7)^2}}$                                |

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| 83 | $f(x) = \arcsen \sqrt{x^2 - 3}$                 | $f'(x) = \frac{\frac{1}{2\sqrt{x^2 - 3}} \cdot 2x}{\sqrt{1 - (x^2 - 3)}}$ $= \frac{x}{\sqrt{(-x^2 + 4) \cdot (x^2 - 3)}}$   |
| 84 | $f(x) = \arcsen \left( \frac{x+1}{x-1} \right)$ | $f'(x) = \frac{1}{\sqrt{1 - \left( \frac{x+1}{x-1} \right)^2}} \cdot \frac{x-1 - (x+1)}{(x-1)^2}$ $f'(x) = \frac{1}{\frac{\sqrt{x^2 - 2x + 1 - x^2 - 2x - 1}}{(x-1)}} \cdot \frac{-2}{(x-1)^2}$ $f'(x) = \frac{-2}{2 \cdot (x-1) \cdot \sqrt{-x}}$ $f'(x) = \frac{-1}{(x-1) \cdot \sqrt{-x}}$ |
| 85 | $f(x) = \sqrt[3]{\sen(x^2 + 3)}$                | $f(x) = \sqrt[3]{\sen(x^2 + 3)} = (\sen(x^2 + 3))^{\frac{1}{3}}$ $f'(x) = \frac{\cos(x^2 + 3) \cdot 2x}{3 \cdot \sqrt[3]{(\sen(x^2 + 3))^2}}$   |
| 86 | $f(x) = \sqrt[3]{\tan e^x}$                     | $f'(x) = \frac{\sec^2(e^x) \cdot e^x}{3 \cdot \sqrt[3]{(\tan(e^x))^2}}$   |
| 87 | $f(x) = x^2 \cdot \tan \sqrt{x}$                | $f'(x) = 2x \cdot \tan \sqrt{x} + x^2 \cdot \sec^2 \sqrt{x} \cdot \frac{1}{2\sqrt{x}}$  |

|     |   |  |
|-----|---|--|
| 88  | $f(x) = \frac{1 + \operatorname{sen}^2 x}{x}$       | $f'(x) = \frac{-2 \operatorname{sen} x \cdot \cos x}{x^2}$                         |
| 89  | $f(x) = \ln(\operatorname{sen} x)$                  | $f'(x) = \frac{1}{\operatorname{sen} x} \cdot \cos x$                              |
| 90  | $f(x) = \operatorname{arctg}(x^2 - 3)$              | $f'(x) = \frac{1}{1 + (x^2 - 3)^2} \cdot 2x$                                       |
| 91  | $f(x) = e^{x^2} - 3 \ln(\sin x)$                    | $f'(x) = e^{x^2} \cdot 2x - 3 \frac{1}{(\sin x)} \cdot \cos x$                     |
| 92  | $f(x) = e^{x+3} + \ln(x-5) - \cot(x)$               | $f'(x) = e^{x+3} + \frac{1}{x-5} + \operatorname{cosec}^2(x)$                      |
| 93  | $f(x) = \operatorname{arctg}(\ln x)$                | $f'(x) = \frac{1}{1 + (\ln x)^2} \cdot \frac{1}{x}$                                |
| 94  | $f(x) = \ln(\ln x)$                                 | $f'(x) = \frac{1}{\ln x} \cdot \frac{1}{x}$  |
| 95  | $f(x) = \ln(\ln x) + \operatorname{arctg}(x^3 - 1)$ | $f'(x) = \frac{1}{\ln x} \cdot \frac{1}{x} + \frac{1}{1 + (x^3 - 1)^2} \cdot 3x^2$ |
| 96  | $f(x) = \cot(x^3 - 1)$                              | $f'(x) = -3 \cdot x^2 \cdot \operatorname{cosec}^2(x^3 - 1)$                       |
| 97  | $f(x) = \sec x - e^x$                               | $f'(x) = \sec x \cdot \operatorname{tg} x - e^x$                                   |
| 98  | $f(x) = \operatorname{cosec} x + \frac{x^3}{3}$     | $f'(x) = -\operatorname{cosec} x \cdot \operatorname{tg} x + x^2$                  |
| 99  | $f(x) = \cot(x+1)$                                  | $f'(x) = -\operatorname{cosec}^2(x+1)$   |
| 100 | $f(x) = e^{x^2} - \cot(x^3 - 1)$                    | $f'(x) = e^{x^2} \cdot 2x + 3 \cdot x^2 \cdot \operatorname{cosec}^2(x^3 - 1)$     |