

### Primeira Fase

1.  $y = 2x(2 + 3x)^5 + \sqrt{2 + x}$
2.  $y = \sqrt{3x^2 - 1} - \frac{1}{2}\sqrt{(1 - 2x)^3}$
3.  $y = \ln(\cos^2 x) - \frac{2}{3}e^x \ln(x^3)$
4.  $y = \frac{1}{3}\text{sen}(\cos(x^4)) - 2 \tan(2x)$
5.  $y = \frac{2}{\sqrt{x}} - \frac{\ln(x^2 - 1)}{\sqrt[4]{x^7}} - 1$
6.  $y = \frac{e^{(x \cos x)}}{x^2 \cos x}$
7.  $y = \sec^2(\text{arctg } x + \text{tg}^2(\sec x))$
8.  $y = \cos(x^2 \ln(x^2 + 1)) \text{sen}(xe^x)$
9.  $y = \sqrt{1 + \sqrt{2 - x^2\sqrt{3 + x^3}}}$
10.  $\text{tg}(xy) + y \text{sen } y = y^x + 2^x$

### Segunda Fase

1.  $y = \ln(\text{sen}(x) + \cos(\ln(\text{sen}(x) + \cos(x))))$
2.  $y = \sec^3((x^2 + 1) \csc(x^3 + 1))$
3.  $y = \frac{e^{4x} \log_4(x^4 4^x)}{\sqrt[4]{4}}$
4.  $y = \sqrt[3]{3 + \sqrt[5]{5 + \sqrt[7]{7 + x}}}$
5.  $y = \left[ \tan\left(\frac{e^{x^2} + (e^x)^2}{x^2 + \pi^2}\right) \right]^{2023}$
6.  $f(x) = \ln\left(\sqrt{\frac{x+1}{3x^2+1}}\right) + \left(\sin(\sqrt{x^2+9})\right)^3$

$$7. f(x) = \frac{\tan(\ln(x^2 + 1))}{\tan(x^2) + 2x^3}.$$

$$8. f(x) = x \tan(2\sqrt{x}) \left( \frac{\sin x}{1 + \cos x} \right)^2.$$

$$9. f(x) = \log_3(\cotan(\sqrt{x})) 3^{x^2}.$$

$$10. f(x) = \frac{(\sin x)^{\cos(x^2)}}{\sin(x^2)}$$

$$11. \frac{1}{y + \frac{1}{1 + \frac{1}{y}}} = \frac{x}{x + \frac{1}{1 + \frac{1}{x}}}$$

$$12. y = \left( \operatorname{sen} \left( \frac{x}{2} \right) \cos \left( \frac{x}{2} \right) \right)^{\ln(3x - \cos(2x))}$$

$$13. \sqrt{y + \sqrt{y + \sqrt{y}}} = \sqrt[3]{x + \sqrt{x - \sqrt{x}}}$$

$$14. y = (e^{x^2} + 4)^{\sqrt{x}} \ln(\cos^2(x)) \cot^2(2x - 3)$$

$$15. y = \frac{\frac{2 \cos(x^2)}{e^{2x} \cos(3x)}}{\frac{x \tan(x)}{-\csc^2(x)}}$$