

Aluno: Lucas de Lucena Siqueira
Matrícula: 201080354

1- $F(x) = x^3 - 2x + 3$ $x_0 = 2$

$$F(x_0) = 2^3 - 2 \cdot 2 + 3 = 7$$

$$F'(x_0) = 3x^2 - 2 = 3 \cdot 2^2 - 2 = 10$$

$$r(x) = 7 + 10(x - 2)$$

2- $F(x) = \sqrt{x^2 + 9}$, $x_0 = -4$

$$F(x_0) = \sqrt{-4^2 + 9} = 5$$

$$F'(x_0) = \frac{x}{\sqrt{x^2 + 9}} = \frac{-4}{\sqrt{-4^2 + 9}} = -\frac{4}{5}$$

$$r(x) = 5 - \frac{4}{5}(x + 4)$$

3- $F(x) = x + \frac{1}{x}$, $x_0 = 1$

$$F(x_0) = 1 + 1 = 2$$

$$F'(x_0) = 1 - \frac{1}{x^2} = 1 - 1 = 0$$

$$r(x) = 2(x - 1)$$

7- $F(x) = x^2 + 2x$, $x_0 = 0,1$

$$F(x_0) = 0,1^2 + 2 \cdot 0,1 = \left(\frac{1}{10}\right)^2 + \frac{1}{5} = \frac{1}{100} + \frac{2}{10} = \frac{21}{100} = 0,21$$

$$F'(x_0) = 2x + 2 = 2 \cdot 0,1 + 2 = 2,2$$

$$r(x) = 0,21 + 2,2(x - 0,1)$$

8- $F(x) = x^{-1}$, $x_0 = 0,9$

$$F(x_0) = 0,9^{-1} = \frac{10}{9}$$

$$F'(x_0) = -\frac{1}{x^2} = -\frac{1}{0,9^2} = -\frac{100}{81}$$

$$r(x) = \frac{10}{9} - \frac{100}{81}(x - 0,9)$$

$$g = f(x) = 2x^2 + 4x - 3, \quad x_0 = -0,9$$

$$f(x_0) = 2 \cdot (-0,9)^2 + 4 \cdot (-0,9) - 3 = -\frac{249}{50} = -4,98$$

$$f'(x_0) = 4x + 4 = 4 \cdot (-0,9) + 4 = 0,4$$

$$f(x) = -4,98 + 0,4(x - 0,9)$$