

$$\text{a-)} f(x) = x^3 - 2x^2 - 5 = 0$$

$$x_0 = 2 \text{ kabul edelim}$$

$$f'(x) = 3x^2 - 4x \quad \text{ve} \quad f(x) = x^3 - 2x^2 - 5$$

$$x_n = x_{n-1} - \frac{f(x_{n-1})}{f'(x_{n-1})}$$

$$x_1 = 2 - \frac{f(2)}{f'(2)} = 3.25$$

$$x_2 = 3.25 - \frac{f(3.25)}{f'(3.25)} = 2.81103678$$

$$x_3 = 2.81103678 - \frac{f(2.81103678)}{f'(2.81103678)} = 2.697989$$

$$x_4 = 2.697989 - \frac{f(2.697989)}{f'(2.697989)} = 2.690677$$

$$x_5 = 2.690677 - \frac{f(2.690677)}{f'(2.690677)} = 2.690647$$

$$\text{b-)} f(x) = x^3 + 3x^2 - 1$$

$$f'(x) = 3x^2 + 6x$$

$$x_0 = -3 \text{ farzedelim}$$

$$x_n = x_{n-1} - \frac{f(x_{n-1})}{f'(x_{n-1})}$$

$$x_1 = -3 - \frac{f(-3)}{f'(-3)} = -2.88888888$$

$$x_2 = -2.888888888 - \frac{f(-2.888888888)}{f'(-2.888888888)} = -2.8794518$$

$$x_3 = -2.8794518 - \frac{f(-2.8794518)}{f'(-2.8794518)} = -2.8793857$$

$$x_4 = -2.8793857 - \frac{f(-2.8793857)}{f'(-2.8793857)} = -2.8793857$$

c-) $f(x)=x - \cos x$ ve $f'(x)=1 - \sin x$

$$x_0 = 0 \text{ farzedelim}$$

$$x_n = x_{n-1} - \frac{f(x_{n-1})}{f'(x_{n-1})}$$

$$x_1 = 0 - \frac{f(0)}{f'(0)} = 1$$

$$x_2 = 1 - \frac{f(1)}{f'(1)} = 0.750363$$

$$x_3 = 0.750363 - \frac{f(0.750363)}{f'(0.750363)} = 0.7391123$$

$$x_4 = 0.7391123 - \frac{f(0.7391123)}{f'(0.7391123)} = 0.7390854$$

$$\text{d-)} f(x) = x - 0.8 - 0.2\sin x$$

$$f'(x) = 1 + 0.2\cos x$$

$$x_0 = 0 \text{ farzedelim}$$

$$x_n = x_{n-1} - \frac{f(x_{n-1})}{f'(x_{n-1})}$$

$$x_1 = 0 - \frac{f(0)}{f'(0)} = 1$$

$$x_2 = 1 - \frac{f(1)}{f'(1)} = 0.9644529$$

$$x_3 = 0.9644529 - \frac{f(0.9644529)}{f'(0.9644529)} = 0.9643333$$