QUESTİON 3 SECANT METHOD AND THE METHOD OF FALSE POSİTİON

$f\left(x\right)=-x^{3}-\cos\left(x\right)$

The Secant Method

$$p_n = p_{n-1} - \frac{f\left(p_{n-1}\right)\left(p_{n-1}-p_{n-2}\right)}{f\left(p_{n-1}\right)-f\left(p_{n-2}\right)}$$

$p_0=-1 \quad p_1=0$

$$p_2 = 0 - \frac{f\left(0\right)\left(0-\left(-1\right)\right)}{f\left(0\right)-f\left(-1\right)} = -0.685073$$

$$p_3 = -0.685073 - \frac{f\left(-0.685073\right)\left(-0.685073-0\right)}{f\left(-0.685073\right)-f\left(0\right)} = -1.252076$$

The Method of False Position

The only difference is

if $\left(f\left(p_2\right)*f\left(p_1\right)<0\right)\ p_0=p_1$ *;*

Otherwise p_0 *stays same*

$p_1=p_2$

$f\left(p_2\right)=f\left(-0.685073\right)=-0.452850\ f\left(p_1\right)=f\left(0\right)=-1$

then $p_3 = -0.685073 - \frac{f\left(-0.685073\right)\left(-0.685073-\left(-1\right)\right)}{f\left(-0.685073\right)-f\left(-1\right)} = -0.841355$