Soru-1) $x^3 - 2x^2 - 5 = 0$ $[2,4]$

$x_{alt} = 2$ $x_{üst} = 4$

$f(2) = 8 - 8 - 5 = -5$ $f(4) = 64 - 32 - 5 = 27$

işaret testi

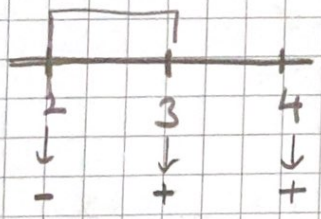
$F(2) \cdot F(4) < 0$

---

1. kök tahmini

$x_{kök} = \frac{x_{alt} + x_{üst}}{2} = \frac{2+4}{2} = 3$

$f(3) = 27 - 18 - 5 = 4$



---

2. kök tahmini

$\frac{2+3}{2} = 2,5$

$x_{alt} = 2$ $x_{üst} = 3$

$x_{kök} = 2,5$

$F(2,5) = -1,875$

---

3. kök tahmini

$\frac{2,5 + 3}{2} = 2,75$

$x_{alt} = 2,5$ $x_{üst} = 3$

$x_{kök} = 2,75$

$F(2,75) = 0,67188$

---

4. kök tahmini

$\frac{2,75 + 2,5}{2} = 2,625$

$x_{alt} = 2,5$ $x_{üst} = 2,75$

$x_{kök} = 2,625$

$F(2,625) = -0,69336$

it.no	x_{alt}	$f(x_{alt})$	$x_{üst}$	$f(x_{üst})$	$x_{kök}$	$f(x_{kök})$
1	2	-5	4	27	3	4
2	2	-5	3	4	2,5	-1,875
3	2,5	-1,875	3	4	2,75	0,671
4	2,5	-1,875	2,75	0,671	2,625	-0,69

soru -2) $x^3+4x^2-10=0$ $[1,2]$

$\varepsilon = 10^{-6}$

Durma koşulu

$|x-x_n| < 10^{-6}$

$f(1) = -5$

$f(2) = 14$

1. kök

$x_{alt} = 1$ $x_{üst} = 2$

$x_{kök} = 1,5$ $f(1,5) = 2,375$

2. kök

$x_{alt} = 1$ $x_{üst} = 1,5$

$x_{kök} = 1,25$ $f(1,25) = -1,79$

3. kök

$x_{alt} = 1,25$ $x_{üst} = 1,5$

$x_{kök} = 1,375$ $f(1,375) = 0,162$

4. kök

$x_{alt} = 1,25$ $x_{üst} = 1,375$

$x_{kök} = \underline{1,3125}$ $f(1,3125) = -0,8483$

iter-no	x_{alt}	$f(x_{alt})$	$x_{üst}$	$f(x_{üst})$	x_{ort}	$f(x_{ort})$
1	1	-5	2	14	1,5	2,375
2	1	-5	1,5	2,375	1,25	-1,79
3	1,25	-1,79	1,5	2,375	1,375	0,162
4	1,25	-1,79	1,375	0,162	1,3125	-0,8483