

SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107



AN AUTONOMOUS INSTITUTION

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

	Given an approximate value of a root of a
equo	ition, a better and closer approximation to the
Yout	can be found by using an iterative process
	ed Newton's method (OT) Nowton-Raphson metho
	het do be an approximate value of a root of
the	equation for =0
	het I be the exact-root heaver to do. Than
d=	do the where h is very small positive (on nego
7	i. flat = f (wo+h) = 0 8ince d is the exact
X00	t 0 + f(x) =0.
	By Taylor Expansion,
-	\$(a) = \$(do+h) = f(do) + hb'(do) + bi' f"(do)+- e) = f h is small, neglecting lists. etc.
(-	es of his small, neglecting hishisetc.
we	get f(0,7+hf(0)=0.
	· 6 = - 8(00) 11 16 240
	\$ (dg) Lb \$ 00)7
	h= - \$(00) is \$(00) +0.
	Let this value be 2,
	d, = do - \$(00)
	No. of the contract of the con
	d, is a better approximate root than do.

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Starting with this do we get
for which is still belie
do = di filor) i toute this projecy
continuing like this, we the quantity
enting with this do not for still have do = d, - f(d) which is still have continuing like this, he i tenate this protess with love, -d, 1 is less than the quantity
derived.
92 4, (QL) , L=01/2-
This is the iterative formula \$ 006
17 - V 00 5-04-d
Find the positive root Ob f(x) = dx2-3x-0=0.
by Newton Raphson method correct to five
decimal placer.
Bolo: Let for = 2x9-3x-(:, of 6x = 6x2-3
f(1) = 2-3-6=-7 =-ve
0 = 16-6-6= H =+ve
i.a root lies between 162.
Pake do = 2
- di= di - fore)
= \alpha_i - \land \frac{2}{6d_i^2 - 3}
= 6 di 3 - 3 di - dui 3 + 3 di + 6
6d:2-3



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Goden - Ad.	•		
d. = 4(2)	13+6 - 38 132-3 - 21		
d,=1.80	15 24		
	a bearing the second control of the second c		
d4 = 14	6 F(961EBT-1) C-2(961EBT-1)	=1-783769	
	d. = 4(2) d, = 1.80 d ₂ = 4(1) 6(1) d ₃ = 4(1)	$\alpha' = \frac{4(2)^{3} + 6}{6(2)^{2} - 3} = \frac{36}{21}$ $\alpha'_{1} = 1.809524$ $\alpha'_{2} = \frac{4(1.609524)^{3} + 6}{6(1.809524)^{2} - 3}$ $\alpha'_{3} = \frac{4(1.781200)^{2} - 3}{6(1.781200)^{2} - 3}$	$\alpha' = \frac{4(2)^3 + 6}{6(2)^2 - 3} = \frac{38}{21}$