1) Apply Euler carchy method with step size

b to IVP

y' = -y y(0)=1

Now determine an explicit expression you

For what values at bi, the sequence

fyny is bounded.

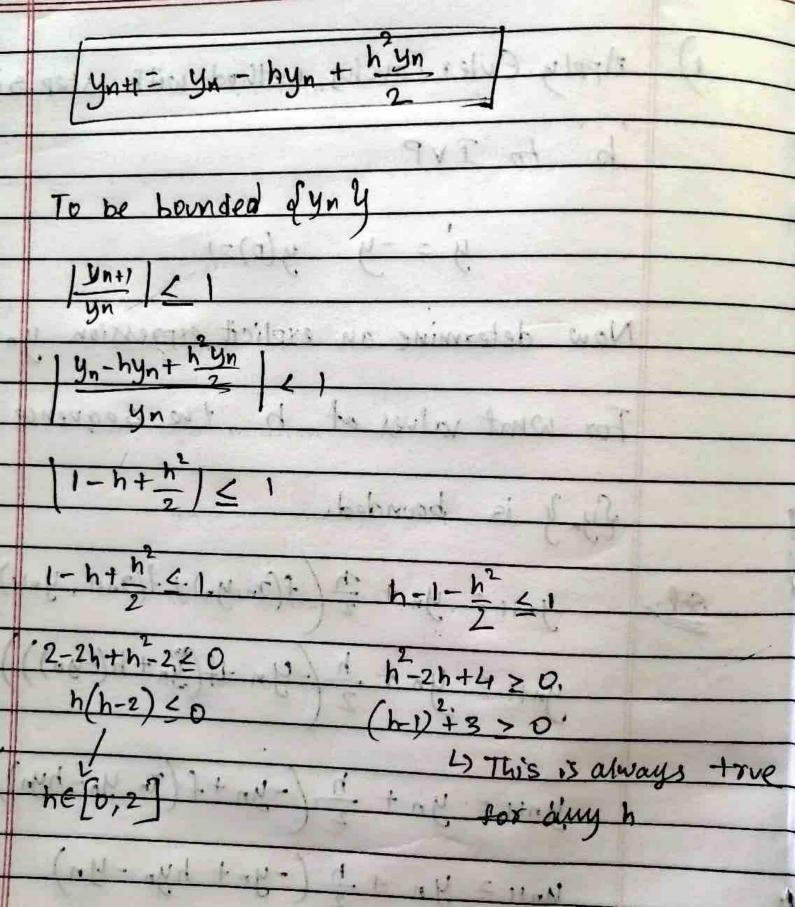
Sol- yn+1 = yn + = (f(2n, yn)++(2n+1, yn+1)

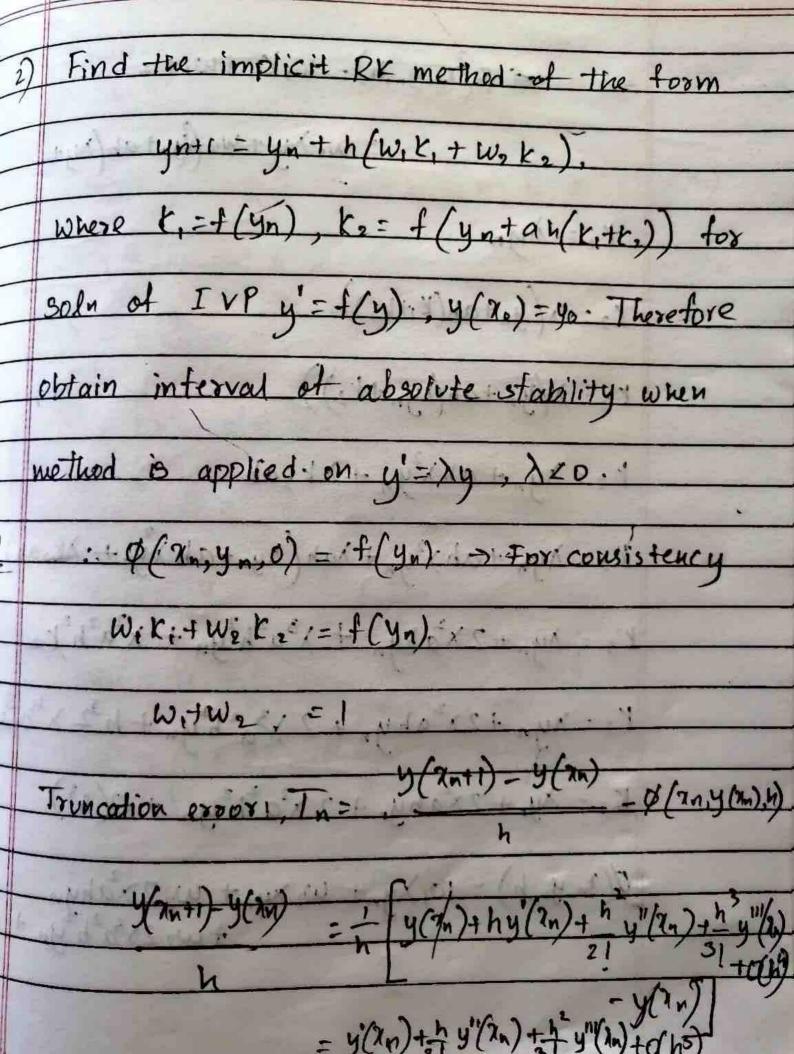
yn+1 = yn + h (-yn ++ (yn+h(-yn)))

yntr = yn + h (-yn + f (xn, yn - hyn))

yn+1 = yn + 1 (-yn + hyn - yn)

ynt = yn - hyn + hyn -hyn 2 2 2





$$K_{2} = \lambda y_{n} + ah(x_{y_{n}} + k_{2})$$

$$k_{2} = \lambda y_{n} + ah\lambda^{2}y_{n} + \lambda k_{2}ah$$

$$k_{2} = \lambda y_{n} + ah\lambda^{2}y_{n} + \lambda k_{2}ah$$

$$k_{3} = \lambda y_{n} + ah\lambda^{2}y_{n} + \lambda ah(\lambda y_{n} + ah\lambda^{2}y_{n} + \lambda k_{3}ah)$$

$$k_{4} = \lambda y_{n} + 2\lambda^{2}ahy_{n} + \lambda^{3}a^{2}h^{2}y_{n} + \lambda^{2}a^{2}h^{2}k_{3}$$

$$k_{5} = \lambda y_{n} + 2\lambda^{2}ahy_{n} + \lambda^{3}a^{2}h^{2}y_{n} + \lambda^{2}a^{2}h^{2}k_{3}$$

$$k_{5} = \lambda y_{n} + 2\lambda^{2}ahy_{n} + 2\lambda^{3}a^{2}h^{2}y_{n} + \lambda^{3}a^{3}y_{n} + \lambda^{3}a^{2}h^{2}y_{n} + \lambda^{3}a^{2}h^{$$

$$\frac{y(2n+1)-y(2n)}{h} = \frac{\lambda y_{n}}{2} + \frac{\lambda^{2}y_{n}h}{2} + \frac{\lambda^{3}y_{n}h^{2}}{6} + o(h^{2})$$

$$Composing terms of $O(2n,y_{n},h) \ge \frac{y(k_{n}h)-y(2n)}{h}$

$$\frac{\lambda^{2}}{2} = \frac{\lambda^{2}}{2} = \frac{\lambda^{2}}{2} = \frac{1}{2}$$

$$\frac{\lambda^{3}}{2} = 2\lambda^{3}w_{n} = \frac{1}{2} = \frac{1}{2} = \frac{1}{2}$$

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