

(10 1/2)

$$c = \frac{b(b+\lambda-1)}{a} = \frac{-\lambda(-\lambda/2 + \lambda - 1)}{2} = \frac{-\lambda(\lambda/2 - 1)}{2}$$

Quadratic map experiences period doubling from 2 to 4 when  $c = -\frac{5}{4}$ .

$$\therefore -\frac{5}{4} = \frac{-\lambda(\lambda/2 - 1)}{2} = -\frac{\lambda^2}{4} + \frac{\lambda}{2}$$

$$-5 = -\lambda^2 + 2\lambda$$

$$\lambda^2 - 2\lambda - 5 = 0$$

$$\lambda = \frac{2 \pm \sqrt{(-2)^2 - 4 \cdot 1 \cdot -5}}{2}$$

$$= \frac{2 \pm \sqrt{4 + 20}}{2} = 1 \pm \sqrt{6}$$

$\lambda > 0 \Rightarrow \lambda = 1 + \sqrt{6}$  as before.