

CONSIDER

$$g(x) = 2x(1-x) = 2x - 2x^2$$

a) VERIFY $x=0$ & $x=\frac{1}{2}$ ARE FIXED POINTS OF $g(x)$

$$g(0) \stackrel{!}{=} 0 \rightarrow g(0) = 2 \cdot 0(1-0) = 0 \quad \checkmark$$

$$g\left(\frac{1}{2}\right) \stackrel{!}{=} \frac{1}{2} \rightarrow g\left(\frac{1}{2}\right) = 2 \cdot \frac{1}{2} \left(1 - \frac{1}{2}\right) = 1 \cdot \frac{1}{2} = \frac{1}{2} \quad \checkmark$$

b) WHY IS IT EXPECTED THAT FIXED POINT IT, STARTING $x_0 \approx 0$, WILL FAIL TO CONVERGE TO $x=0$

→ LOOK @ LECTURE NOTES/VIDS



SINCE $|g'(x)| > 1$ NEAR $x=0$

c) WHY EXPECT FPI WILL CONV. → $x = \frac{1}{2}$ WHEN $P_0 \in (0, 1)$?
WHAT ORDER OF CONV. IS EXPECTED?

→ LF MENTIONS OF OOC IN NOTES

A_1 & A_3

105, 230
30, 400
30, 420