hence $x_n \geq x_{n+1}$. Since (x_n) monotonic and bounded, it has a limit. Let L denote the limit of (x_n), then as $n \to \infty$ we have

$$L = \frac{1}{4-L}$$
$$L^2 - 4L + 1 = 0,$$

which has roots $2 \pm \sqrt{3}$. Since $2 + \sqrt{3} > 3$, it must be that $L = 2 - \sqrt{3}$. ■