

5

Si  $a > 0$  aproximación de  $x$

$$R = \text{error relativo} = \frac{\text{Error}}{x} = \frac{E}{x} \rightarrow E = x \cdot R$$

$$E = |x - a| \rightarrow |x - a| = R \cdot x \rightarrow$$

$$\rightarrow -Rx < x - a < Rx \Leftrightarrow (1-R)x < -a < (1+R)x$$

$$(1+R)x > a > (1-R)x \rightarrow (1-R)x < a < (1+R)x$$

Para despejar  $x$  necesitamos ver si  $1-R$  y  $R+1$  son positivos o negativos.

$$\bullet \text{ Si } \underline{0 < R < 1} \rightarrow 1-R > 0 \quad \begin{cases} x < \frac{a}{1-R} \\ x > \frac{a}{1+R} \end{cases}$$

$$x \in \left( \frac{a}{R+1}, \frac{a}{1-R} \right)$$

$$\bullet \text{ Si } \underline{R > 1} \rightarrow 1-R < 0 \quad \begin{cases} x > \frac{a}{1-R} \\ x > \frac{a}{1+R} \end{cases}$$

$$x \in \left( \frac{a}{R+1}, \infty \right)$$

$$\bullet \text{ Si } R = 1 \rightarrow 1-R = 0 \rightarrow 0 < a < 2x \quad x > a/2 \\ x \in (a/2, \infty)$$