

* Apakah sebuah penyearah (rectifier) sistem linier.

Jawab = Bukan, penyearah adalah sistem tak linier.

Bukti : $y(t) = |x(t)| \leftarrow$

Masukkan $\longrightarrow$ Keluaran

$$x_1(t) = 2 \longrightarrow y_1(t) = |x_1(t)| = 2$$

$$x_2(t) = -3 \longrightarrow y_2(t) = |x_2(t)| = 3$$

$$\alpha_1 = 4, \alpha_2 = 5 \longrightarrow \alpha_1 y_1(t) + \alpha_2 y_2(t)$$

$$= (4 \times 2) + (5 \times 3) = 23$$

$$x(t) = \alpha_1 x_1(t) + \alpha_2 x_2(t)$$

$$= 4 \times 2 + 5 \times (-3) = 23$$

$$\longrightarrow y(t) = |x(t)| = |-7| = 7$$