

1.28. Determine which of the properties listed in Problem 1.27 hold and which do not hold for each of the following discrete-time systems. Justify your answers. In each example,  $y[n]$  denotes the system output and  $x[n]$  is the system input.

(a)  $y[n] = x[-n]$

(b)  $y[n] = x[n-2] - 2x[n-8]$

(c)  $y[n] = nx[n]$

(d)  $y[n] = \mathcal{E}\{x[n-1]\}$

(e)  $y[n] = \begin{cases} x[n], & n \geq 1 \\ 0, & n = 0 \\ x[n+1], & n \leq -1 \end{cases}$

(f)  $y[n] = \begin{cases} x[n], & n \geq 1 \\ 0, & n = 0 \\ x[n], & n \leq -1 \end{cases}$

(g)  $y[n] = x[4n+1]$

- (1) Memoryless
- (2) Time invariant
- (3) Linear
- (4) Causal
- (5) Stable