## PROBLEM:

For each of the following frequency responses on the left, pick one of the representations, $S_1$ through $S_8$ on the right, that defines *exactly* the same LTI system. Write your answer $S_1$, $S_2$, $S_3$, $S_4$, $S_5$, $S_6$, $S_7$, or $S_8$, in the box next to each frequency response.

$\boxed{\text{ANS} = \phantom{xxx}}$    (a)    $1 + e^{j\hat{\omega}}$

        $S_1$    $b_k = \{1, 0, 1\}$

$\boxed{\text{ANS} = \phantom{xxx}}$    (b)    $2e^{-3j\hat{\omega}}$

        $S_2$    $y[n] = x[n] + x[n-1]$

$\boxed{\text{ANS} = \phantom{xxx}}$    (c)    $\dfrac{\sin(3\hat{\omega}/2)}{\sin(\hat{\omega}/2)} e^{-j\hat{\omega}}$

        $S_3$    $h[n] = \delta[n] - \delta[n-1]$

$\boxed{\text{ANS} = \phantom{xxx}}$    (d)    $2e^{-j\hat{\omega}} \cos(\hat{\omega})$

        $S_4$    $b_k = \{1, 1, 1, 1\}$

        $S_5$    $y[n] = x[n] + x[n-1] + x[n-2]$

        $S_6$    $h[n] = 2\delta[n-3]$

        $S_7$    $y[n] = x[n] + 2x[n-3]$

        $S_8$    $h[n] = 0.5\delta[n] + 0.5\delta[n-2]$