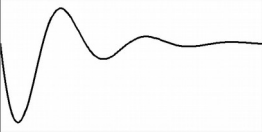
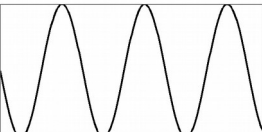
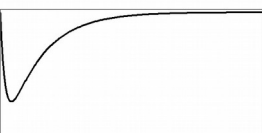
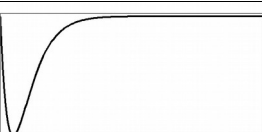


Connect the following boxes to the corresponded type of solution for a transient response of a 2nd order circuit with characteristic polynomial equation: $s^2 + a_1s + a_0 = 0$ and damping ratio ξ

Under-damped	$0 < \xi < 1$	$s_1 = ja_0 = -s_2$	$A \sin(\sqrt{a_0}t + \varphi)$	
Undamped	$\xi > 1$	$s_1 = s_2^*$	$A_1 + A_2 t \exp(s_1 t)$	
Over-damped	$\xi = 0$	$s_1 = s_2$	$A \exp(\operatorname{Re}[s_1]t) \sin(\operatorname{Im}[s_1]t + \varphi)$	
Critically damped	$\xi = 1$	$s_1 \neq s_2,$ $s_1 \text{ and } s_2 \in \Re$	$A_1 \exp(s_1 t) + A_2 \exp(s_2 t)$	

(A and ϕ are constants)