

Respostas do Exercício 1

- 1- Para os modelos abaixo determine as F.T. indicadas (i-entrada, o-saída). Considere constantes de mola, amortecimento e massa idênticas quando necessário.

Sistema	Sistema
(1) $\frac{X_o}{X_i}(s) = \frac{\frac{B}{k}s}{\frac{B}{k}s + 1}$	(9) $\frac{X_o}{X_i}(s) = \frac{\frac{1}{2}}{\frac{M^2}{2kB}s^3 + \frac{M}{k}s^2 + \left(\frac{M}{B} + \frac{B}{2k}\right)s + 1}$
(2) $\frac{X_o}{X_i}(s) = \frac{\frac{B}{2k}s + \frac{1}{2}}{\frac{B}{2k}s + 1}$	(10) $\frac{X_o}{F_i}(s) = \frac{\frac{1}{Bs}}{\frac{M}{K}s^2 + \frac{M}{B}s + 1}$
(3) $\frac{X_o}{X_i}(s) = \frac{\frac{1}{2}}{\frac{B}{2k}s + 1}$	(11) $\frac{X_o}{X_i}(s) = \frac{1}{\frac{B}{k}s + 1}$
(4) $\frac{X_o}{X_i}(s) = \frac{\frac{B}{k}s + 1}{\frac{2B}{k}s + 1}$	(12) $\frac{X_o}{X_i}(s) = \frac{\frac{1}{2K}(Ms^2 + Bs + K)}{\frac{M^2}{2BK}s^3 + \frac{M}{K}s^2 + \left(\frac{M}{B} + \frac{B}{2K}\right)s + 1}$
(5) $\frac{X_o}{X_i}(s) = \frac{\frac{B}{k}s}{\frac{2B}{k}s + 1}$	(13) $\frac{X_o}{F_i}(s) = \frac{\frac{1}{Bs} + \frac{1}{K}}{\frac{M}{K}s^2 + \frac{M}{B}s + 1}$
(6) $\frac{X_o}{X_i}(s) = \frac{\frac{B}{k}s}{\frac{2B}{k}s + 1}$	(14) $\frac{X_o}{X_i}(s) = \frac{\frac{1}{k}}{\frac{M}{K}s^2 + 1}$
(7) $\frac{X_o}{X_i}(s) = \frac{\frac{B}{K}s + 1}{\frac{2B}{K}s + 1}$	(15) $\frac{X_o}{X_i}(s) = \frac{\frac{B}{2K}s + \frac{1}{2}}{\frac{B}{2K}s + 1}$
(8) $\frac{X_o}{X_i}(s) = \frac{\frac{1}{2}}{\frac{B}{2K}s + 1}$	(16) $\frac{X_o}{X_i}(s) = \frac{1}{2}$