Problem 6.9

The bandwidth B of a raised cosine pulse spectrum is $2B_0 - f_1$, where $B_0 = 1/2T_b$ and $f_1 = B_0(1 - a)$. Thus $B = B_0(1 + \alpha)$. For a data rate of 56 kilobits per second, $B_0 = 28$ kHz.

(a) $\alpha = 0.25$,
$B = 28$ kHz x 1.25 = 35 kHz

(b) $\alpha = 0.5$,
$B = 28$ kHz x 1.5 = 42 kHz

(c) $\alpha = 0.75$,
$B = 28$ x 1.75 = 49 kHz

(d) $\alpha = 1.0$,
$B = 28$ x 2 = 56 kHz