Given a modulated signal $m(t)\cos(2\pi f_c t)$
build a demodulator using an ideal sampler

For received signal $m(t)\cos(2\pi f_c t) + n(t)$
for $n(t)$ WSS with mean zero and $S_n(f) = 3\,mW/Hz$,
find the SNR at your demodulator output.