You have an amplifier with a nominal open-loop gain of 1000 ($A = 1000$), but the variance in the gain is 25% (meaning that the open-loop gain ranges in value from 750 to 1250). You want to use feedback to try to desensitize the gain and you are willing to have the nominal closed-loop gain be 20 ($G = 20$).

- What value of feedback factor should you use to go from the nominal open-loop gain to the nominal closed loop gain?

    $\beta =$ _____

- What will be the variance in the closed-loop gain of the amps, assuming that the feedback factor is exact (i.e. there is no variance in β)?

    $G_{min} =$ _____ $G_{max} =$ _____

- What will be the variance in the closed-loop gain of the amps if feedback factor also has 10% variance – i.e. 10% bigger or smaller than the nominal value you calculated above? Hint: Look for the worst-case scenarios.

    $G_{min} =$ _____ $G_{max} =$ _____