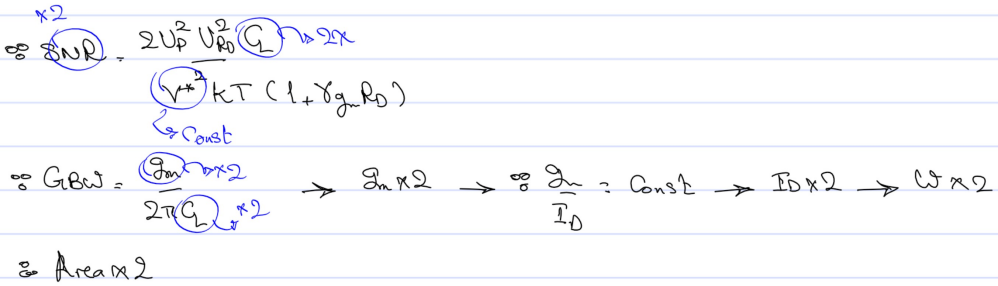
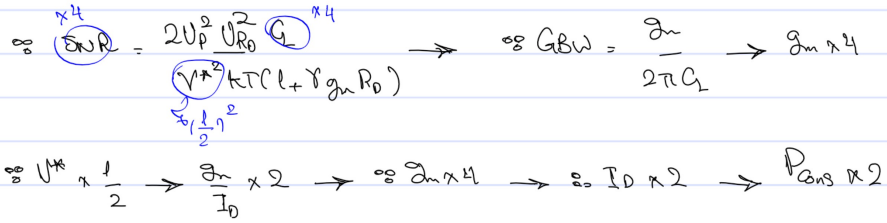
1. Assume a baseband analog circuit with bandwidth limited by load capacitance (CL). To double the SNR, the designer doubled CL but kept the bias point (V*) of the transistors unchanged. He modified the bias currents to keep the bandwidth constant. The area of the circuit will be roughly multiplied by _____.



2. Assume a baseband analog circuit with bandwidth limited by load capacitance (CL). To add one bit of resolution, the designer quadrupled CL. To keep the bandwidth constant, he halved V* wherever needed, and the power consumption should be multiplied by _____.



3. In an RF system with a specific bandwidth dictated by a standard, the total integrated noise is determined by the _____.

By thermal noise (resistors)

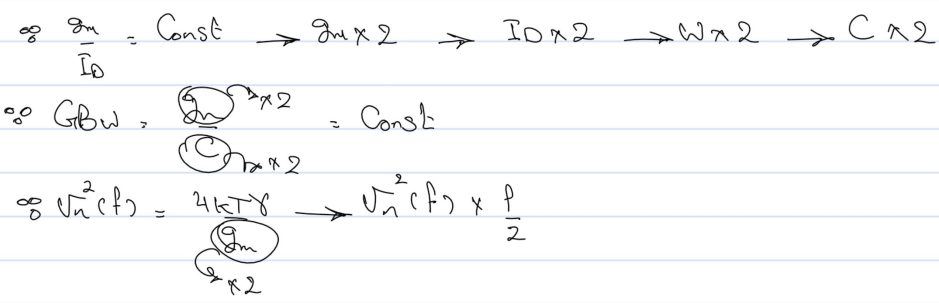
4. A low-noise amplifier has low output-referred noise.

False → Low input referred noise

5. In an analog baseband system, the total integrated noise is determined by the _____.

By Capacitance $\frac{kT}{C}$

6. Assume a baseband analog circuit with bandwidth limited by MOSFET capacitance. The designer doubled the bias currents but kept the bias point (gm/ID) of the transistors unchanged. Then _____.



∴ speed Const, Noise decrease

7. Achieving high SNR is more difficult in deep sub-micron technologies because _____.

V_{DD} decrease and SNR ∝ V_{DD}^2

8. For a wideband MOSFET amplifier, the most important noise contribution is due to _____.

thermal noise

9. In a baseband analog circuit, if the bandwidth of your circuit is 10s of MHz, then you don't have to worry about Flicker noise.

False

10. The flicker noise of a MOSFET will decrease if _____.

bias current is increased at a constant bias point (gm/ID)	g_m/I_D Const → $\frac{I_D}{W}$ = Const → I_D↑, W↑, Area↑, noise↓ ✓
temperature is decreased	$V_{n,flicker}^2 \neq f(T)$ ✗
gm/ID is increased at a constant bias current	g_m/I_D↑, $\frac{I_D}{W}$↓, I_D Const, W↑, Area↑, noise↓ ✓
channel length is increased at a constant bias current and gm/ID	g_m/I_D = Const, I_D Const, $\frac{W}{L}$ = Const → L↑, W↑, Area↑, noise↓ ✓