

2.5 Effect of finite open-loop gain and bandwidth on circuit performance

Reading Assignment: 89-93

Bad News! → Real Op-Amps are **not** ideal!

In the "real world", op-amp have a slew (pun intended) of **problems** that limit their performance and application.

It is vital that we electrical engineers **understand** these limitations.

HO: THE GAIN OF REAL OP AMPS

An approximation of can simplify the transfer function.

HO: A USEFUL APPROXIMATION OF THE OP-AMP TRANSFER FUNCTION

We find the gain-bandwidth product to be a very useful value!

EXAMPLE: THE GAIN-BANDWIDTH PRODUCT

An amplifier built with an op-amp must have a gain (i.e., the closed-loop gain) **less** than that of the op amp. We find that the resulting amplifier **bandwidth** is easily determined!

HO: THE CLOSED-LOOP BANDWIDTH

EXAMPLE: AMPLIFIER BANDWIDTH