Quiz for Lesson 19

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Electronic Circuits 1
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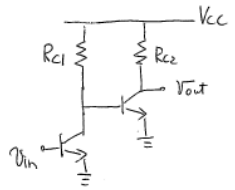
Prob. 1

Determine the small-signal voltage gain for the following cascaded common-emitter amplifier. Assume both transistors are in the forward active region and include the Early effect. Express your answers in terms of $r_{\pi 1}$, $r_{\pi 2}$, g_{m1}, g_{m2}, r_{o1}, r_{o2} , R_{C1}, and R_{C2}.



Prob. 2

The transconductance of a BJT in the common-emitter configuration is influenced by temperature, process, and input voltage level changes. Determine whether each of the following changes increases or decreases the transconductance: a) Temperature increase, b) Larger doping concentrations in the base and the emitter than the target values, c) Increase in the input voltage level.

Prob. 3

Determine the small-signal voltage gain of the following common-emitter with emitter degeneration. Assume the transistor is in the forward active region and there is no Early effect.