

MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
Department of Electrical Engineering and Computer Science  
6.301 Solid State Circuits

Fall 2013  
Problem Set 2

Issued : Sept 10, 2013  
Due : Sept 17, 2013

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**Problem 1: Saturation**

Determine the DC Operating voltage  $V_1$  at which  $Q_1$  will saturate and  $M_1$  will enter the triode regime.

**Problem 2: Small-signal Parameters**

Calculate the small-signal transistor parameters  $g_m$ ,  $r_\pi$ , and  $r_o$  in the following circuit.

$$V_A = 60V$$

$$\beta_0 = 200$$