Problem 8

Consider the amplifier shown below.

1. Find $v\_{GS}\left(t\right)$. Assume that the coupling capacitor is a short circuit for the ac signal and an open circuit for the dc. (*Hint:* Apply the superposition principle for the ac and dc sources.)
2. If the FET has $V\_{to}=1V$ and $K=0.5 {mA}/{V^{2}}$, sketch its drain characteristics to scale for $v\_{GS}=$1, 2, 3, and 4V.
3. Draw the load line for the amplifier on the characteristics.
4. Find the values of $V\_{DSQ}$, $V\_{DSmin}$and $V\_{DSmax}$.

 