Exercise E11

(Does the load line always intercept the X axis at V_DD?)

Exercise E11

- Max voltage swing at drain: $V_D = 0.5V_{DD} = 2.5V$
- Thus $R_S = \frac{V_D - V_{DS}}{I_D} = 33.33\Omega$, and $R_D = \frac{V_{DD} - V_D}{I_D} = 166.67\Omega$

- $V_G = V_{GS} + V_S = V_{GS} + I_D R_S = 2.7V$
- Since also $V_G = \frac{R_2}{R_1 + R_2} V_{DD}$, given $R_2 = 1M\Omega$, we have $R_1 = 0.852M\Omega$

- Presumably 1MΩ is just chosen because it has a large resistance, and thus eliminating any current at gate.