

1. Find the gain of the amplifier in Fig. 1, but expressed in decibels:

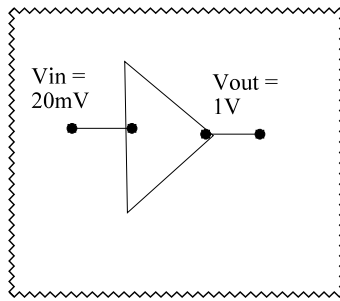


Fig. 1

4. What is the difference between a field effect transistor (FET) and a "regular" bipolar junction transistor (BJT)?

5. What are two operating regions of a field effect transistor (FET)?

2. Fig. 2 shows a field effect transistor (FET) circuit. When the gate is connected to ground, a maximum amount of current is measured into the drain; is this measurement correct?; explain why:

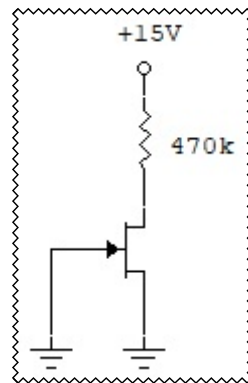


Fig. 2

3. The field effect transistor in Fig. 3 has the following parameters:  $I_{DSS} = 12\text{mA}$ ,  $V_{GSoff} = -2\text{V}$ . Calculate a value for  $R_S$  to "self-bias" the circuit in Fig. 3:

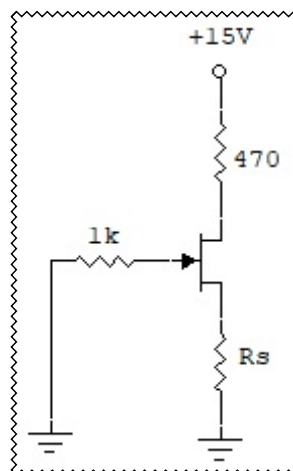


Fig.3

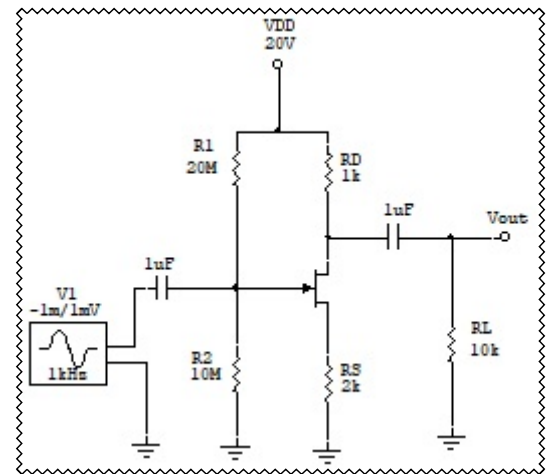


Fig. 4

6. For the circuit in Fig.4, calculate the AC resistance of the drain ("Little"  $r'_d$ )

7. The circuit in Fig. 4 has  $g_m = 2000\mu\text{S}$ . Calculate the gain  $A_v$  of this circuit.