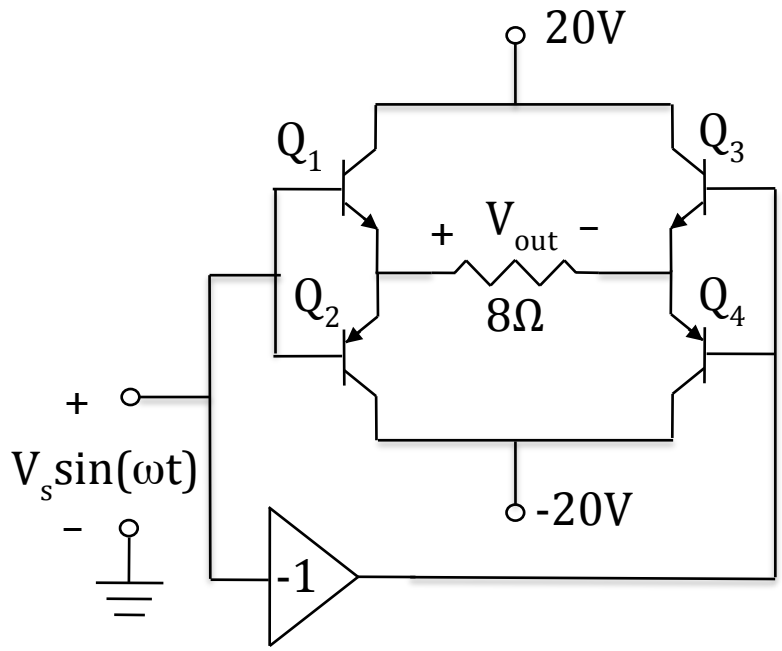
The amplifier shown below is termed a bridge amplifier. The amplifier symbol with the -1 inside is an inverting amplifier with unity gain. The BJT characteristics are shown next to the circuit diagram.



Q1 = Q2 = Q3 = Q4

Beta = 100
V_A = 100 V
$V_{CE,\ sat}$ = 0V
Max. junction temp.
$T_{j,max}$ = 125 °C
Max. ambient temp.
$T_{a,max}$ = 50 °C
Junction-to-case thermal resistance $R_{\theta,jc}$ = 1 °C/W

1. (0.5 points)
   Estimate the maximum average power the circuit can deliver to the 8 ohm load.

2. (1 point)
   What is the efficiency ($<P_{load}>/<P_{supplies}>$) at maximum output signal swing?

3. (0.5 points)
   What should be the peak voltage rating and current rating of the transistors. Include a 50% factor of safety.

4. (1 point)
   What is the maximum average power dissipated in a transistor?

5. (1 point)
   The transistors are mounted next to each other on a common heat sink. Specify the required heat sink thermal resistance so that $T_{j,max}$ is not exceeded when the ambient is at 50°C.