For each of the following single-stage BJT amplifier circuits, specify or determine the following:

1. What kind of amplifier is it?
2. Derive the expression for the dc bias current, $I_E$
3. Draw the small-signal model (Hybrid-$\pi$)
4. Determine $A_v$ (voltage gain), $A_i$ (current gain), $R_{in}$, and $R_{out}$
5. Make a table of your results
6. Answer the following questions:
   a. Is the voltage gain low or high?
   b. Is the current gain low or high?
   c. Is the input impedance low, moderate, high? What does it depend on?
   d. Is the output impedance low, moderate, high? What does it depend on?
   e. Is the amplifier inverting or non-inverting?