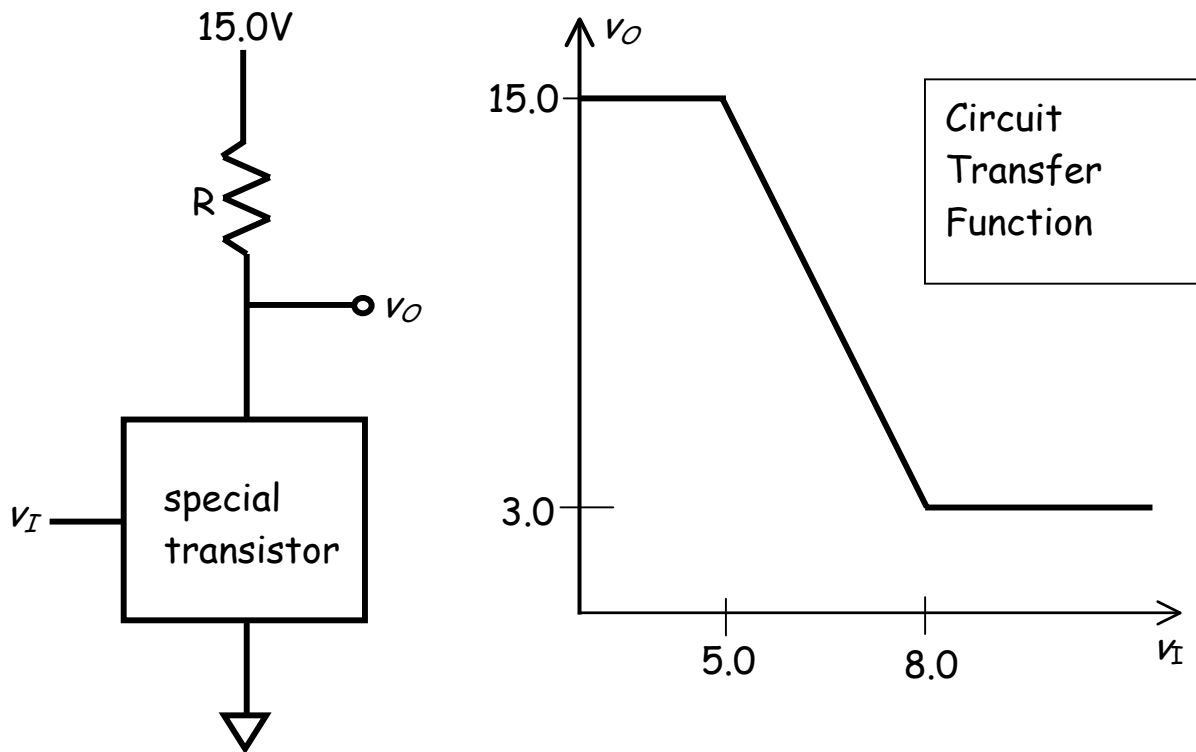


Special Problem 5.9-1

The circuit below uses a **special transistor** that is **unrelated** to either a MOSFET or a BJT.

The **transfer function** of this circuit is likewise shown below.



Say we wish to use this circuit as a **small-signal amplifier**. Determine from the transfer function:

- The ideal **DC operating point** (i.e., the values of DC voltages V_I and V_O) that maximize both the small-signal gain and the distortion-free output swing.
- The **small-signal gain** of this amplifier.