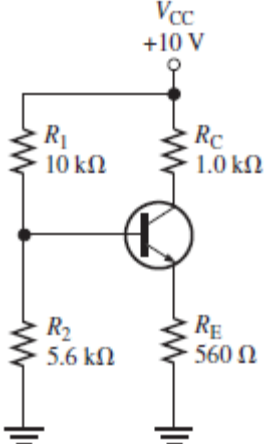


Electronic Circuits II – Tutorial

02

1	Voltage-divider bias is rarely used.	F
2	Input resistance at the base of the transistor can affect voltage-divider bias.	T
3	Stiff voltage-divider bias is essentially independent of base loading.	T

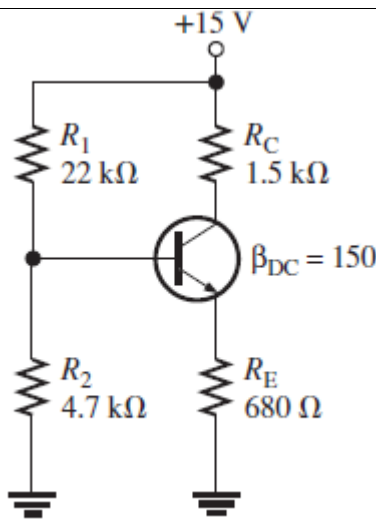
MCQ

#	Question	
1	<p>If the value of R_2 in Figure is reduced, the base voltage will</p>  <p>(a) increase (b) decrease (c) not change</p>	b
2	<p>The maximum value of collector current in a biased transistor is</p> <p>(a) $\beta_{DC} I_B$ (b) $I_{C(sat)}$ (c) greater than I_E (d) $I_E - I_B$</p>	b
3	<p>If a sinusoidal voltage is applied to the base of a biased <i>npn</i> transistor and the resulting sinusoidal collector voltage is clipped near zero volts, the transistor is</p> <p>(a) being driven into saturation (b) being driven into cutoff (c) operating nonlinearly (d) answers (a) and (c) (e) answers (b) and (c)</p>	d



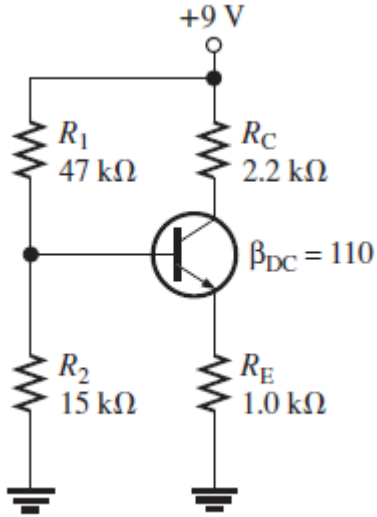
4	<p>In a voltage-divider biased transistor circuit such as in Figure , $R_{IN(BASE)}$ can generally be neglected in calculations when</p> <p>(a) $R_{IN(BASE)} > R_2$ (b) $R_2 > 10R_{IN(BASE)}$ (c) $R_{IN(BASE)} > 10R_2$ (d) $R_1 \ll R_2$</p>	c
5	<p>Voltage-divider bias</p> <p>(a) cannot be independent of β_{DC} (b) can be essentially independent of β_{DC}</p> <p>(c) is not widely used (d) requires fewer components than all the other methods</p>	b

Problems

Q1	 <p>What is the minimum value of β_{DC} in Figure that makes $R_{IN(BASE)} \cong 10R_2$?</p>
Sol 1	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

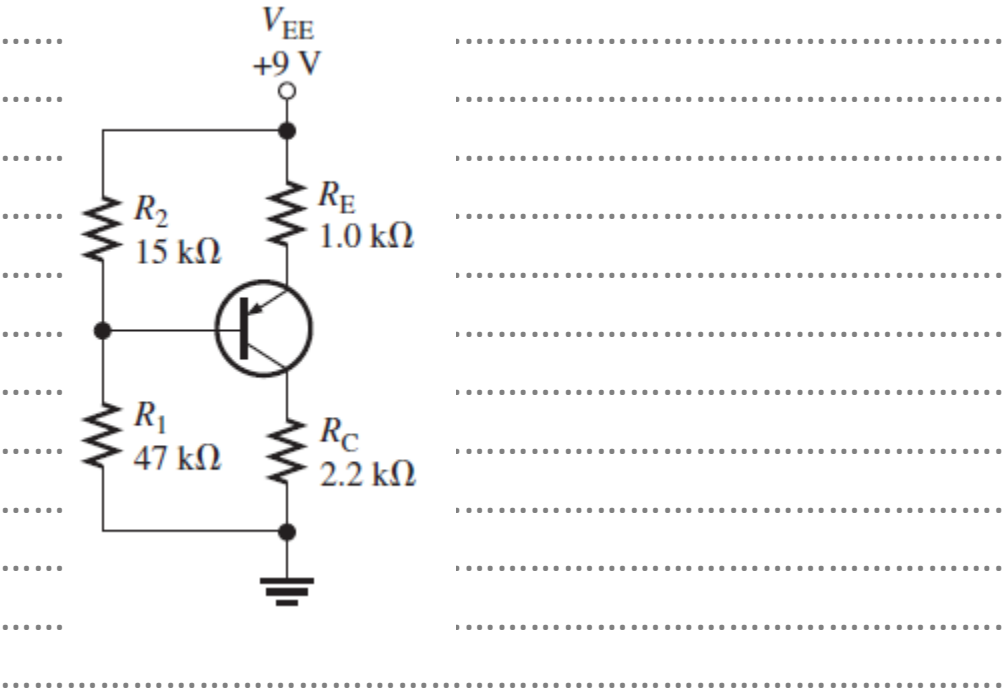


Q2



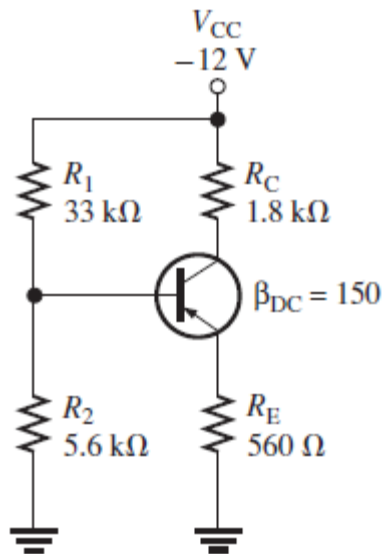
Show the connections required to replace the transistor in Figure ' with a *pnp* device.

Sol
2





Q3



Determine the following in Figure :

- (a) Q-point values
- (b) The minimum power rating of the transistor

Sol
3

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