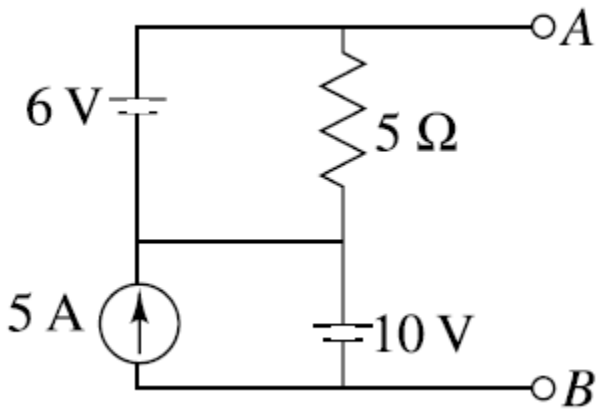
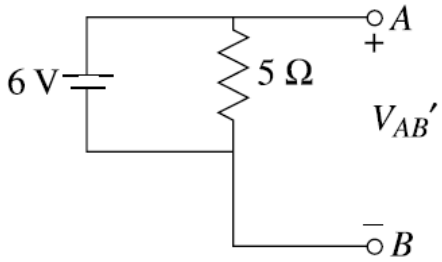
## Lecture 13

1. **Find the voltage VAB using Superposition Theorem.**



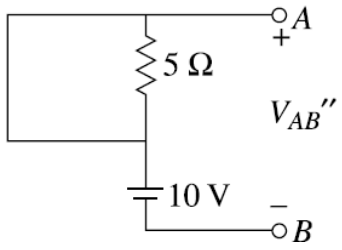

**Solution:**

**Step I:** *When the 6-V source is acting alone*



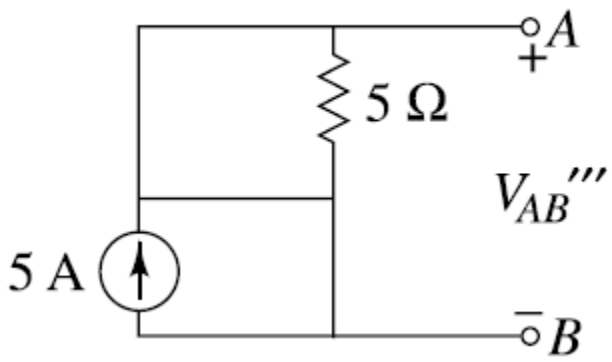

$V_{AB}' = 6$ V

**Step II:** *When the 10-V source is acting alone*



Since the resistor of 5 Ω is shorted, the voltage across it is zero.

$$V_{AB}'' = 10 \text{ V}$$




**Step III:** *When the 5-A source is acting alone*

Due to short circuit in both the parts,

$$V_{AB}''' = 0 \text{ V}$$

**Step IV:** *By superposition theorem,*

$$V_{AB} = V_{AB}' + V_{AB}'' + V_{AB}'''$$
$$= 6 + 10 + 0 = 16 \text{ V}$$