Question 333 to 338
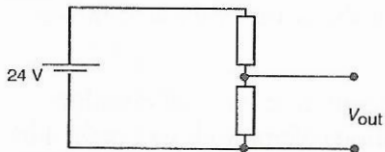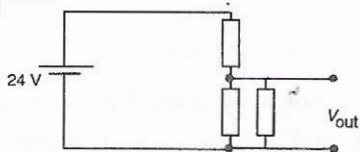
Find V_{out} for these circuits. All the resistors have the same value.
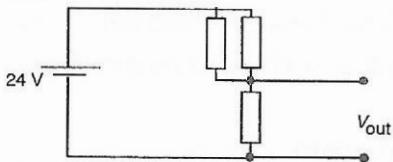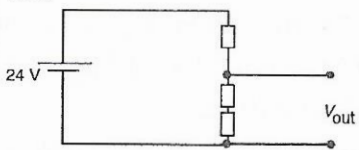
In the circuit shown below, the battery has an e.m.f. of 6.0 V.
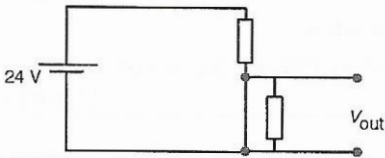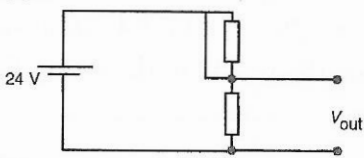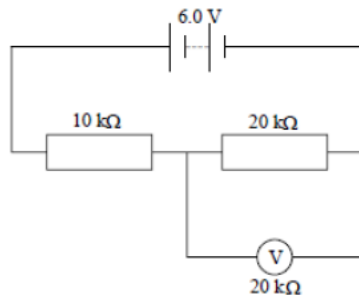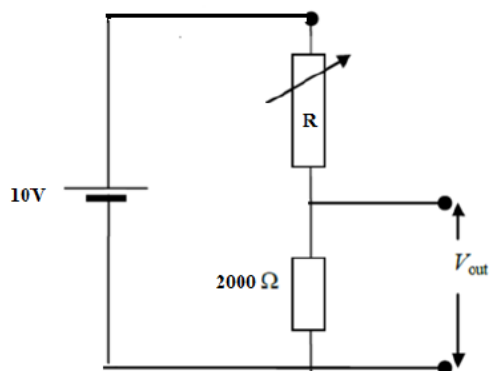The reading on the voltmeter is - ? Ignore value of the
resistance for voltmeter. Assume that it is infinite.


A 10 V power supply is connected in series with a variable resistor and a standard
fixed resistor of 2000 Ω. A voltmeter connected across the variable resistor reads 8 V

a. Determine the value of the variable resistor
The variable resistor is adjusted to a lower value.
b. Explain giving reasons whether the output voltage Vout will increase, decrease or
stay the same.

Voltage divider circuit shown in Figure below, where $V_{IN} = 30$ V.
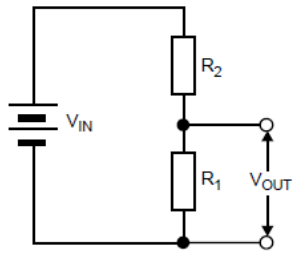
1. If $R_1 = 5$ kΩ what is the value of the resistance R_2 that is required to get $V_{OUT} = 6$ V?

2. If R_2 is 15 kΩ, calculate the current and V_{OUT}.

3. You wire up the circuit of Figure above but only have 10 kΩ resistors available. Explain how you construct the $R_1 = 5$ kΩ resistor using only 10 kΩ resistors, and include a **sketch** to show the connections between the appropriate number of 10 kΩ resistors.