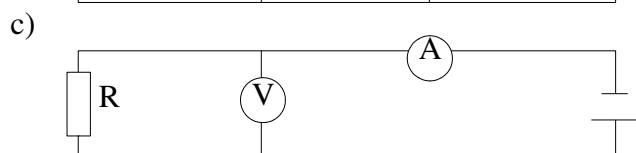
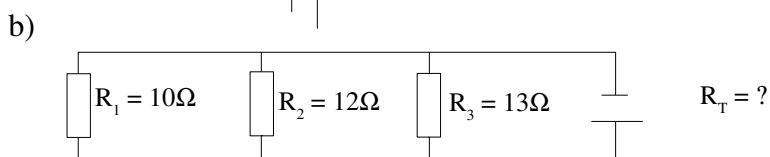
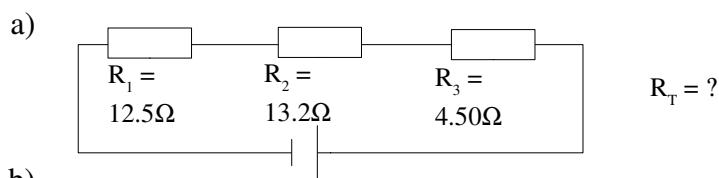


Year 11 Physics
Electric Fields and Current Electricity Assignment

1.
 - (a) If an charge of $8.3 \times 10^{-18} \text{C}$ is placed in a uniform electric field and feels a force of 12 N to the north, calculate the electric field strength.
 - (b) If the electric field in part a was produced by two parallel charged plates a distance of 1.2 m apart, calculate the potential difference between the plates.
2. State what a capacitor does and describe briefly how it works.
3.
 - a) Draw a diagram of a battery with a wire connected from positive to negative. Show which direction conventional current flows, and which direction the electrons flow.
 - b) List four factors that affect the resistance of a wire.
4.
 - a) Calculate how many electrons flow down a wire in 5 seconds when the current flowing is 12 amps. (Hint: 1 coulomb = 6.24×10^{18} electrons)
 - b) Calculate the work done by 2 coulombs flowing at 7 volts.
 - c) Calculate the power output of a speaker in a stereo if its current is 2 amps and its voltage is 10 volts.
 - d) Calculate how long an mp3 player would be able to run continuously on a single 2500mAh battery if it draws $3.125 \times 10^{-1} \text{A}$.
5. Consider the following circuits and determine the total resistance in each circuit.



The ammeter reads 2 amps, and the voltmeter reads 25 volts. $R = ?$