Adding Resistors in Series Ramped Questions

1. Two resistors are connected in series in a simple circuit. One resistor is 2 Ω and the other is 5 Ω. Calculate the total resistance.
2. A small lamp circuit has two resistors in series: 4 Ω and 6 Ω. Calculate the total resistance.
3. Three resistors are connected in series: 3 Ω, 7 Ω and 10 Ω. Calculate the total resistance.
4. A student builds a series circuit using resistors of 12 Ω, 8 Ω and 5 Ω. Calculate the total resistance of the circuit.
5. A series circuit has a total resistance of 30 Ω. One resistor is 18 Ω. Calculate the resistance of the second resistor.
6. A circuit contains three resistors in series. The total resistance is 45 Ω. Two of the resistors are 12 Ω and 20 Ω. Calculate the missing resistance.
7. A student connects four resistors in series: 6 Ω, 9 Ω, 15 Ω and 20 Ω. Calculate the total resistance.
8. A series circuit has a total resistance of 80 Ω. It contains resistors of 15 Ω, 25 Ω and 30 Ω, plus one unknown resistor. Calculate the resistance of the unknown resistor.
9. A 12 V battery is connected to three resistors in series: 2 Ω, 4 Ω and 6 Ω.
   a) Calculate the total resistance.
   b) Calculate the current in the circuit.
10. A 24 V supply is connected to four resistors in series: 3 Ω, 5 Ω, 7 Ω and 9 Ω.
    a) Calculate the total resistance.
    b) Calculate the current in the circuit.
    c) Explain why adding another resistor in series would decrease the current.