FREE REVISION PACK

Series & Parallel Circuits

Pearson Edexcel International Advanced Level Physics · Unit 2 (WPH12) · Specification points 67–68

Easy | Multiple choice · past-paper questions

5	5	≈ 10 min
QUESTIONS	TOTAL MARKS	SUGGESTED TIME*

Contents

Q	LEVEL	FOCUS	SOURCE	MARKS
1	Easy	Two 5 Ω resistors in series and in parallel	Edexcel IAL January 2020 · Unit 2 · Q3	1 mark
2	Easy	Effect of closing a switch across a resistor	Edexcel IAL January 2024 · Unit 2 · Q5	1 mark
3	Easy	Current in one branch of a parallel circuit	Edexcel IAL June 2024 · Unit 2 · Q9	1 mark
4	Easy	Total resistance of a series–parallel combination	Edexcel IAL June 2024 · Unit 2 · Q7	1 mark
5	Easy	Resistors with a short circuit	Edexcel IAL October 2024 · Unit 2 · Q8	1 mark

Key ideas to have ready

- Series: $R = R_1 + R_2 + \ldots$; parallel: $1/R = 1/R_1 + 1/R_2 + \ldots$
- Kirchhoff's first law: current in = current out at a junction (charge conserved).
- Kirchhoff's second law: around a loop, sum of e.m.f.s = sum of p.d.s (energy conserved).
- A plain wire across a component short-circuits it.

How to use this pack

1. The questions are grouped into levels (Easy). Work through them in order, and check your answers at the end of each level before moving on.
2. Every question is multiple choice with one correct answer. Write down your working anyway; that is how you find mistakes.
3. The separate mark scheme uses the same numbers and explains every answer.

Levels are based on how students did in Pearson's examiner reports where that information exists, plus our own difficulty rating. *About 1.5 minutes per question.

Questions are reproduced from Pearson Edexcel International Advanced Level past papers; Pearson Edexcel material is © Pearson Education Ltd. Question numbers have been changed to suit this pack. Get Better At Physics is an independent tutor and is not affiliated with or endorsed by Pearson. Free for personal revision and classroom use.

Easy

Definitions and one-step ideas. Most students get these right.

Questions 1–5

Choose **one** answer for each question and put a cross in the box next to it.

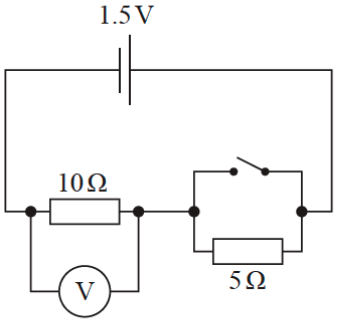
Edexcel IAL January 2020 · Unit 2 · Q3

1 Which row in the table shows the total resistance if two 5 Ω resistors are connected in series and in parallel?

	Series	Parallel
☒ **A**	2.5 Ω	10 Ω
☒ **B**	2.5 Ω	2.5 Ω
☒ **C**	10 Ω	10 Ω
☒ **D**	10 Ω	2.5 Ω

Edexcel IAL January 2024 · Unit 2 · Q5

2 The diagram shows a 1.5 V cell in a circuit with two resistors. The cell has negligible internal resistance.



The switch is closed.

What is the reading on the voltmeter?

☒ **A** 0.15 V

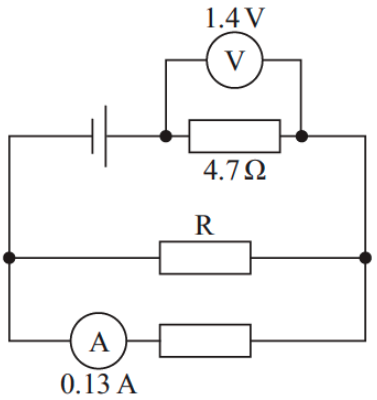
☒ **B** 0.50 V

☒ **C** 1.00 V

☒ **D** 1.50 V

Edexcel IAL June 2024 · Unit 2 · Q9

3 A student connects the circuit shown. The resistors all have different resistances.



Which of the following expressions gives the current, in amps, in resistor R?

☒ **A** $\frac{1.4}{4.7} - 0.13$

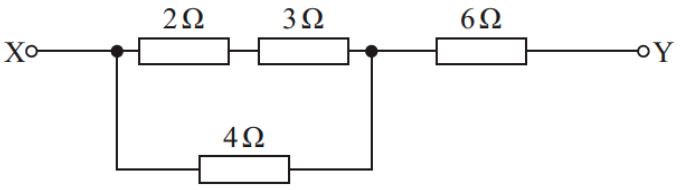
☒ **B** $\frac{1.4}{4.7} + 0.13$

☒ **C** $\frac{4.7}{1.4} - 0.13$

☒ **D** $\frac{4.7}{1.4} + 0.13$

Edexcel IAL June 2024 · Unit 2 · Q7

4 The diagram shows part of an electrical circuit.



Which of the following expressions gives the total resistance, in ohms, between X and Y?

☒ **A** $\dfrac{1}{\dfrac{1}{2+3}+\dfrac{1}{4}+6}$

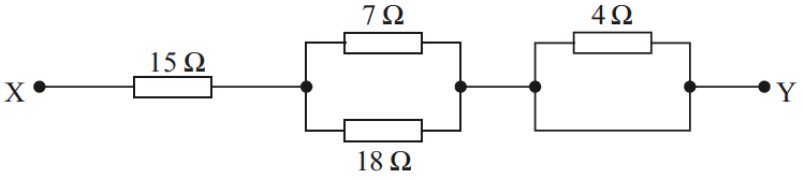
☒ **B** $\dfrac{1}{2+3}+\dfrac{1}{4}+6$

☒ **C** $\dfrac{1}{\dfrac{1}{2}+\dfrac{1}{3}+\dfrac{1}{4}}+6$

☒ **D** $\dfrac{1}{\dfrac{1}{2+3}+\dfrac{1}{4}}+6$

Edexcel IAL October 2024 · Unit 2 · Q8

5 A student connects four resistors between points X and Y, as shown.



Which of the following expressions gives the total resistance, in ohms, between X and Y?

☒ **A** $15+\dfrac{1}{7}+\dfrac{1}{18}$

☒ **B** $15+\dfrac{1}{7}+\dfrac{1}{18}+4$

☒ **C** $15+\dfrac{1}{\left(\dfrac{1}{7}+\dfrac{1}{18}\right)}$

☒ **D** $15+\dfrac{1}{\left(\dfrac{1}{7}+\dfrac{1}{18}\right)}+\dfrac{1}{4}$

End of questions. Check your answers with the matching mark scheme. More free packs and 1-to-1 tuition:
www.getbetteratphysics.co.uk