FREE REVISION PACK

Scalars & Vectors

Pearson Edexcel International Advanced Level Physics · Unit 1 (WPH11) · Specification points 4–6

Easy | Medium | Multiple choice · past-paper questions

5	5	≈ 10 min
QUESTIONS	TOTAL MARKS	SUGGESTED TIME*

Contents

Q	LEVEL	FOCUS	SOURCE	MARKS
1	Easy	Finding a component of velocity	Edexcel IAL October 2019 · Unit 1 · Q5	1 mark
2	Easy	Acceleration and work done	Edexcel IAL January 2025 · Unit 1 · Q3	1 mark
3	Easy	Units that can only belong to a scalar	Edexcel IAL June 2019 · Unit 1 · Q1	1 mark
4	Easy	Resultant of three forces	Edexcel IAL June 2025 · Unit 1 · Q7	1 mark
5	Medium	Adding two displacements on bearings	Edexcel IAL June 2019 · Unit 1 · Q9	1 mark

Key ideas to have ready

- A **scalar** has size only (mass, speed, energy, work, power, time). A **vector** has size and direction (displacement, velocity, acceleration, force, momentum, weight).
- Add perpendicular vectors with Pythagoras; find the direction with tan θ.
- Resolve a vector F at angle θ to a direction: F cos θ along it, F sin θ at right angles to it.
- For a scale drawing, place vectors head to tail; the resultant runs from the first tail to the last head.

How to use this pack

1. The questions are grouped into levels (Easy and Medium). 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.

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Easy

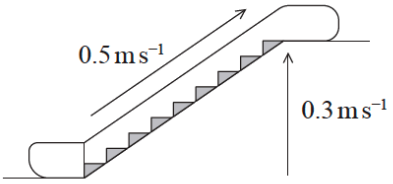
Definitions and one-step ideas. Most students get these right.

Questions 1–4

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

Edexcel IAL October 2019 · Unit 1 · Q5

1 The steps on an escalator move with a speed of $0.5\,\text{m s}^{-1}$. The vertical component of their velocity is $0.3\,\text{m s}^{-1}$ upwards.



Which of the following is the horizontal component of velocity for the escalator steps?

☒ **A** $0.2\,\text{m s}^{-1}$

☒ **B** $0.4\,\text{m s}^{-1}$

☒ **C** $0.5\,\text{m s}^{-1}$

☒ **D** $0.8\,\text{m s}^{-1}$

Edexcel IAL January 2025 · Unit 1 · Q3

2 A physical quantity can be either a scalar or a vector.

Which row of the table is correct for acceleration and work done?

	Acceleration	Work done
☒ **A**	scalar	scalar
☒ **B**	scalar	vector
☒ **C**	vector	scalar
☒ **D**	vector	vector

Edexcel IAL June 2019 · Unit 1 · Q1

3 Quantities in physics are classified as either vectors or scalars.

Which of the following units could **only** be used for a scalar quantity?

☒ **A** m s^{-1}

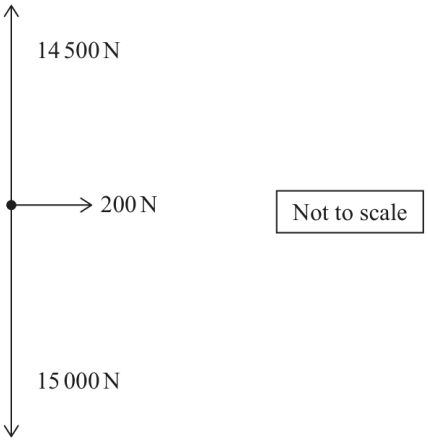
☒ **B** m s^{-2}

☒ **C** kg m s^{-2}

☒ **D** kg m^{-3}

Edexcel IAL June 2025 · Unit 1 · Q7

4 The forces acting on a helicopter are shown. The helicopter is represented by the dot.



Which of the following expressions gives the magnitude of the resultant force, in newtons, on the helicopter?

☒ **A** $\left(15\,000^2 - 14\,500^2\right) + 200^2$

☒ **B** $\sqrt{\left(15\,000^2 - 14\,500^2\right) + 200^2}$

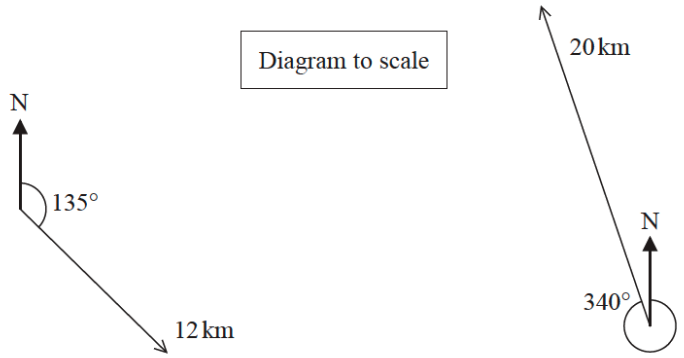
☒ **C** $\left(15\,000 - 14\,500\right)^2 + 200^2$

☒ **D** $\sqrt{\left(15\,000 - 14\,500\right)^2 + 200^2}$

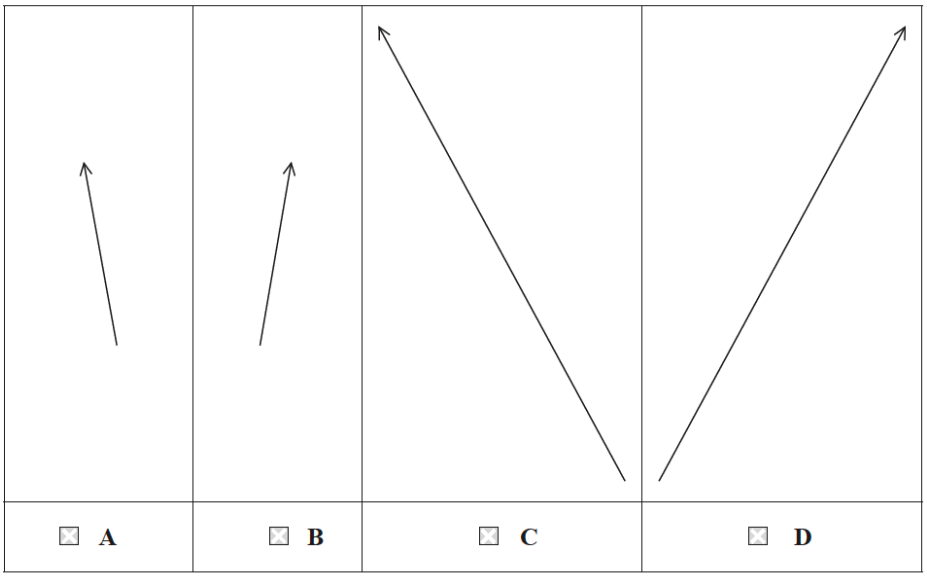
Medium Two or three steps. Roughly a third to a half of students get these right. **Question 5**

Edexcel IAL June 2019 · Unit 1 · Q9

5 A student walked 12 km on a bearing of 135° and then walked 20 km on a bearing of 340° as shown.



Which of the following could represent the final displacement of the student from his starting point?



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