FREE REVISION PACK

Viscosity & Stokes' Law

Pearson Edexcel International Advanced Level Physics · Unit 1 (WPH11) · Specification points 25–26

Easy | Multiple choice · past-paper questions

5	5	≈ 10 min
QUESTIONS	TOTAL MARKS	SUGGESTED TIME*

Contents

Q	LEVEL	FOCUS	SOURCE	MARKS
1	Easy	Conditions for Stokes' law	Edexcel IAL June 2024 · Unit 1 · Q3	1 mark
2	Easy	When Stokes' law applies	Edexcel IAL October 2022 · Unit 1 · Q3	1 mark
3	Easy	Cooling oil and terminal velocity	Edexcel IAL October 2025 · Unit 1 · Q4	1 mark
4	Easy	What makes sand settle faster	Edexcel IAL June 2019 · Unit 1 · Q5	1 mark
5	Easy	Terminal velocity and viscosity	Edexcel IAL January 2022 · Unit 1 · Q6	1 mark

Key ideas to have ready

- Stokes' law: $F = 6\pi\eta rv$, for small spheres moving slowly with laminar (streamline) flow.
- Viscosity of a liquid decreases as its temperature increases.
- Greater viscosity → more drag → lower terminal velocity.
- In the falling-ball method, start timing only once the ball has reached terminal velocity.

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.

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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 June 2024 · Unit 1 · Q3

1 An object is moving through a fluid.

Which row of the table states the conditions which must be met for Stokes' law to apply?

	Size of object	Shape of object	Type of flow
☒ **A**	any	any	turbulent
☒ **B**	any	spherical	turbulent
☒ **C**	small	spherical	laminar
☒ **D**	small	any	laminar

Edexcel IAL October 2022 · Unit 1 · Q3

2 Which of the following best describes the situations in which Stokes' Law applies for objects moving in a fluid?

☒ **A** all spherical objects moving at low speeds

☒ **B** all spherical objects in a fluid with low viscosity

☒ **C** small spherical objects moving at low speeds

☒ **D** small spherical objects in a fluid with low viscosity

Edexcel IAL October 2025 · Unit 1 · Q4

3 A ball bearing falls through oil at a terminal velocity.

Which row of the table is correct when the temperature of the oil decreases?

	Viscosity of oil	Terminal velocity of ball bearing
☒ **A**	decreases	decreases
☒ **B**	decreases	increases
☒ **C**	increases	decreases
☒ **D**	increases	increases

Edexcel IAL June 2019 · Unit 1 · Q5

4 A sample of sea water is collected using a beaker. The sample contains some particles of sand which settle at the bottom of the beaker.

Which of the following would result in a decrease in the time taken for the sand to settle?

☒ **A** smaller particles of sand

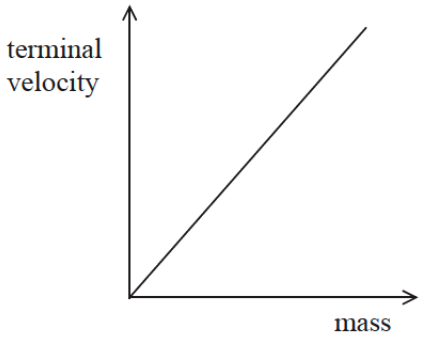
☒ **B** lower temperature of the sea water

☒ **C** smaller terminal velocity of sand particles

☒ **D** lower viscosity of the sea water

Edexcel IAL January 2022 · Unit 1 · Q6

5 The graph shows how terminal velocity varies with mass for small spheres of equal diameter falling through a viscous liquid.



Which of the following describes the gradient of the graph for a liquid of greater viscosity?

☒ **A** a greater gradient

☒ **B** a smaller gradient

☒ **C** a variable gradient

☒ **D** the same gradient

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