FREE REVISION PACK

SI Units & Prefixes

AQA A-level Physics · 7407 / 7408 · Specification 3.1.1

Easy | Medium | Multiple choice · past-paper questions

6	6	≈ 10 min
QUESTIONS	TOTAL MARKS	SUGGESTED TIME*

Contents

Q	LEVEL	FOCUS	SOURCE	MARKS
1	Easy	Ordering forces with prefixes	AQA June 2018 · AS Paper 2 · Q14	1 mark
2	Easy	Unit of the area under a force–time graph	AQA June 2018 · A-level Paper 1 · Q7	1 mark
3	Easy	Two quantities with the unit kg m^2 s^{-2}	AQA June 2022 · A-level Paper 1 · Q7	1 mark
4	Medium	Quantities with the unit kg m^{-1} s^{-2}	AQA June 2019 · AS Paper 2 · Q5	1 mark
5	Medium	Prefixes in order of increasing size	AQA June 2024 · AS Paper 2 · Q34	1 mark
6	Medium	Base-unit form of the ohm	AQA June 2018 · AS Paper 2 · Q33	1 mark

Key ideas to have ready

- The SI base units used at A-level: kg, m, s, A, K, mol. Units such as N, J, Pa, C, V and Ω are derived from them.
- Derive a unit from an equation: N = kg m s^{-2} (F = ma), J = N m = kg m^2 s^{-2}, Pa = N m^{-2} = kg m^{-1} s^{-2}.
- Prefixes: f 10^{-15}, p 10^{-12}, n 10^{-9}, μ 10^{-6}, m 10^{-3}, c 10^{-2}, k 10^{3}, M 10^{6}, G 10^{9}, T 10^{12}.
- Different quantities can share a unit: work and the moment of a force are both kg m^2 s^{-2}; stress and the Young modulus are both Pa.

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 AQA'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 1–3

Only **one** answer per question is allowed. For each question, completely fill in the circle alongside the appropriate answer.

AQA June 2018 · AS Paper 2 · Q14

1 Which list puts the forces in order of increasing magnitude?

[1 mark]

A $2\ \text{pN} < 2\ \text{fN} < 2\ \text{TN} < 2\ \text{GN}$ ⬭

B $2\ \text{pN} < 2\ \text{fN} < 2\ \text{GN} < 2\ \text{TN}$ ⬭

C $2\ \text{fN} < 2\ \text{pN} < 2\ \text{TN} < 2\ \text{GN}$ ⬭

D $2\ \text{fN} < 2\ \text{pN} < 2\ \text{GN} < 2\ \text{TN}$ ⬭

AQA June 2018 · A-level Paper 1 · Q7

2 What is a correct unit for the area under a force–time graph?

[1 mark]

A N m ⬭

B kg m s^{-1} ⬭

C kg m s^{-2} ⬭

D N s^{-1} ⬭

AQA June 2022 · A-level Paper 1 · Q7

3 Which two quantities have the base unit $\text{kg m}^2\ \text{s}^{-2}$?

[1 mark]

A kinetic energy and momentum ⬭

B kinetic energy and Young modulus ⬭

C work done and the moment of a couple ⬭

D work done and pressure ⬭

Medium

Two or three steps. Roughly a third to a half of students get these right.

Questions 4–6

AQA June 2019 · AS Paper 2 · Q5

4 Which quantities can be written in the fundamental units $\mathrm{kg\ m^{-1}\ s^{-2}}$?

[1 mark]

A Tensile stress and kinetic energy ⬭

B The moment of a force and kinetic energy ⬭

C Young modulus and the moment of a force ⬭

D Young modulus and tensile stress ⬭

AQA June 2024 · AS Paper 2 · Q34

5 Which row shows SI prefixes in order of increasing magnitude?

[1 mark]

	Smallest			Largest	
A	f	p	μ	c	⬭
B	f	p	c	μ	⬭
C	p	f	μ	c	⬭
D	p	f	c	μ	⬭

AQA June 2018 · AS Paper 2 · Q33

6 Which is equivalent to the ohm?

[1 mark]

A $\mathrm{J\ C^{-2}\ s^{-1}}$ ⬭

B $\mathrm{J\ C^{-2}\ s}$ ⬭

C $\mathrm{J\ s}$ ⬭

D $\mathrm{J\ s^{-1}}$ ⬭

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