2024 Ph H1 Q1

Section: Our Dynamic Universe
Topic: Motion, Equations and Graphs

Question Summary

A cyclist accelerates at **1.2 m s⁻²**, increasing speed from **4.0 m s⁻¹** to **7.5 m s⁻¹**.
What is the **distance** travelled during this acceleration?

✅ Final Answer:

B. 17 m

Working

Use:
$v^2 = u^2 + 2as$

$s = \frac{v^2 - u^2}{2a}$

Substitute:
$s = \frac{(7.5)^2 - (4.0)^2}{2 \times 1.2} = \frac{56.25 - 16}{2.4} = \frac{40.25}{2.4} \approx 16.8\,\text{m}.$

This rounds to **17 m**.

Quick Tips

- Use $v^2 = u^2 + 2as$ when time isn't given.
- Check squaring carefully: 7.5² = 56.25.