

**GCSE Physics A (Gateway)**  
**J249/03 Physics A P1-P4 and P9 (Higher Tier)**

**Question Set 23**

23

A student investigates potential and kinetic energy.

She looks at some data from experiments with motion trolleys and energy.

- The trolleys are stationary at the top of a ramp and have a gravitational potential energy of 8 J.
- Each trolley has a mass of 1 kg.

Look at the research data on the trolleys.

<b>Trolley</b>	<b>Velocity at the bottom of the ramp (m / s)</b>
<b>W</b>	3
<b>X</b>	4
<b>Y</b>	5
<b>Z</b>	6

The student thinks the data is wrong.

Use the data and your understanding of energy transfer to justify why trolley W has the most likely velocity and why X, Y and Z do not.

[4]

**Total Marks for Question Set 23: 4**

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