

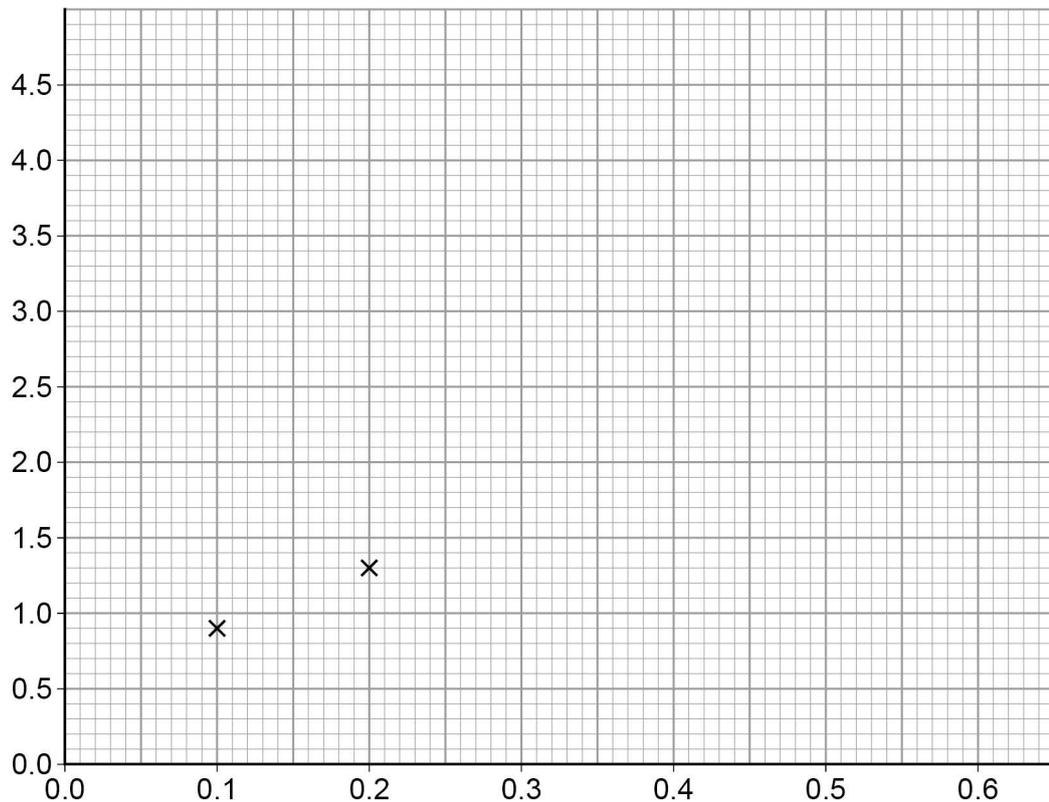
Table 2 shows the results.

Table 2

Height of ramp in metres	0.1	0.2	0.3	0.4	0.5	0.6
Acceleration in m/s^2	0.9	1.3	2.1	3.2	3.9	4.3

The first two results have been plotted on **Figure 12**.

Figure 12



0 7 . 2 Complete **Figure 12**.

You should:

- label the axes
- plot the remaining results from **Table 2**
- draw a line of best fit.

[4 marks]

Question 7 continues on the next page

Turn over ►



0 7 . 3

Write down the equation that links acceleration (a), mass (m) and resultant force (F).**[1 mark]**

0 7 . 4

When the resultant force on the trolley was 0.63 N the acceleration of the trolley was 2.1 m/s^2

Calculate the mass of the trolley.

[3 marks]

Mass of trolley = _____ kg

14**END OF QUESTIONS**

Total			8

Question	Answers	Mark	AO / Spec. Ref.
07.1	Level 3: The method would lead to the production of a valid outcome. All key steps are identified and logically sequenced.	5–6	AO3
	Level 2: The method would not necessarily lead to a valid outcome. Most steps are identified, but the plan is not fully logically sequenced.	3–4	AO1
	Level 1: The method would not lead to a valid outcome. Some relevant steps are identified, but links are not made clear.	1–2	AO1
	No relevant content	0	6.5.4.2.2 RPA19
	<p>Indicative content</p> <p><u>measurements</u></p> <ul style="list-style-type: none"> • place one wooden block under the ramp • vary the height by placing a different number of wooden blocks • measure the height of the ramp using a metre rule • measure the distance travelled using a metre rule • measure time taken using light gates (and computer/datalogger) • measure time taken using a stopclock or ticker timer • release trolley from the same position each time • release the trolley without applying a force <p><u>results</u></p> <ul style="list-style-type: none"> • repeat at the same height and calculate a mean • repeat for different heights • calculate acceleration using $a = (v-u)/t$ or $a = \frac{v^2-u^2}{2s}$ 		

Question	Answers	Extra information	Mark	AO / Spec. Ref.
07.2	all points plotted correctly	allow 1 mark for 3 points plotted correctly	2	AO2 6.5.4.2.2 RPA19
	height of ramp in metres on x-axis and acceleration in m/s ² on y-axis)	both quantity and unit required for both axes	1	
	correct line of best fit		1	
07.3	resultant force = mass × acceleration or F = ma		1	AO1 6.5.4.2.2 RPA19
07.4	0.63 = m × 2.1	allow 0.3 (kg)	1	AO2 6.5.4.2.2 RPA19
	$m = \frac{0.63}{2.1}$		1	
	m = 0.30 (kg)		1	
Total			14	