



Oxford Cambridge and RSA

## **GCSE Physics B (Twenty First Century Science)**

**J259/01** Breadth in Physics (Foundation Tier)

### **Question Set 36**

1

Amaya and Li measure the speed of sound in air:

- Amaya stands 30 m away from Li;
- Amaya claps her hands;
- Li starts a timer when he sees the clap;
- Li stops the timer when he hears the sound.

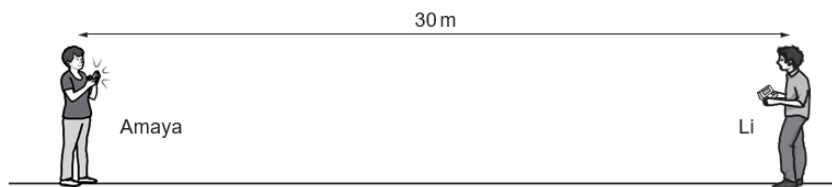


Table 9.1 shows their results.

| Attempt | Time (s) | Calculated speed (m/s) |
|---------|----------|------------------------|
| 1       | 0.32     | 94                     |
| 2       | 0.44     | 68                     |
| 3       | 0.37     | 81                     |
| 4       | 0.49     | 61                     |
| 5       | 0.40     |                        |

Table 9.1

- (a) Calculate the speed of sound for Attempt 5.

Use the equation: speed = distance ÷ time

$$\text{Speed} = 30/0.4 = 75\text{m/s}$$

Speed = ..... 75 ..... m/s [2]

- (b) The expected value for the speed of sound in air is about 300 m/s.

- (i) State why the data in Table 9.1 is inaccurate. [1]

Results are much lower than 300m/s

- (ii) State why the data in Table 9.1 is imprecise. [1]

Wide range of results

- (c) (i) Describe one improvement to the method. [1]

Increase the distance

- (ii) State how your improvement in (c)(i) will produce better data. [1]

Reduces % uncertainty

**Total Marks for Question Set 36: 6**

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