

GCSE Physics A (Gateway)

J249/01 Physics A P1-P4 and P9 (Foundation Tier)

Question Set 4

1* Four students run in different races.

Student	Race distance (m)	Time (s)
A	50	6
B	100	15
C	100	14
D	200	31

Use the information in the table to **describe** and **compare** the motion of the four students.

Use the data in your answer.

$$\text{Speed} = \frac{\text{distance}}{\text{time}} \quad [6]$$

$$\text{Student A} = \frac{50}{6} = 8.33 \text{ m/s}$$

$$\text{Student B} = \frac{100}{15} = 6.67 \text{ m/s}$$

$$\text{Student C} = \frac{100}{14} = 7.14 \text{ m/s}$$

$$\text{Student D} = \frac{200}{31} = 6.45 \text{ m/s}$$

→ Race B and C are the same length but race C takes 1 second less therefore student C is faster than student B.

Race A is the shortest race and race D is the longest. Student D has the slowest speed overall at 6.5 m/s. but their race is the longest. Student A is the fastest at 8.33 m/s. Race B is twice the length of Race A but time taken to run B and C is more than Race A.

Total Marks for Question Set 4: 6

Mark scheme

Level of Response Marking Guidance

For answers marked by levels of response:

Read through the whole answer from start to finish, using the Level descriptors to help you decide whether it is a strong or weak answer. The indicative scientific content in the Guidance column indicates the expected parameters for candidates' answers, but be prepared to recognise and credit unexpected approaches where they show relevance. Using a 'best-fit' approach based on the skills and science content evidenced within the answer, first decide which set of level descriptors, Level 1, Level 2 or Level 3, best describes the overall quality of the answer.

Once the level is located, award the higher or lower mark:

The higher mark should be awarded where the level descriptor has been evidenced and all aspects of the communication statement (in italics) have been met.

The lower mark should be awarded where the level descriptor has been evidenced but aspects of the communication statement (in italics) are missing.

In summary:

The skills and science content determines the level.

The communication statement determines the mark within a level.

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