

- 5 A mass is dropped from rest, and falls through a distance of 2.0 m in a vacuum. An observer records the time taken for the mass to fall through this distance using a manually operated stopwatch and repeats the measurements a further two times. The average result of these measured times, displayed in the table below, was used to determine a value for the acceleration of free fall. This was calculated to be 9.8 m s^{-2} .

| | first measurement | second measurement | third measurement | average |
|--------|-------------------|--------------------|-------------------|---------|
| time/s | 0.6 | 0.73 | 0.59 | 0.64 |

Which statement best relates to the experiment?

- A The measurements are precise and accurate with no evidence of random errors.
- B The measurements are not accurate and not always recorded to the degree of precision of the measuring device but the calculated experimental result is accurate.
- C The measurements are not always recorded to the degree of precision of the measuring device but are accurate. Systematic errors may be present.
- D The range of results shows that there were random errors made but the calculated value is correct so the experiment was successful.

Space for working