

Vertical Motion Under Gravity

The downwards acceleration under gravity is $g = 9.8 \text{ ms}^{-2}$.
ALWAYS state the positive direction in your calculations.
Quote final answers to 2 or 3 s.f. – you may be penalised if you quote more.

Example

A ball is thrown vertically upwards with a velocity of 14.7 ms^{-1} from a platform 19.6 m above the ground. Find:

- a) The time taken for the ball to reach the ground
- b) The velocity of the ball when it hits the ground

Example

A ball is projected vertically upwards from ground level at a speed of 20 ms^{-1} . Determine the amount of time the ball is at least 10m above ground level.

Example – When Two Particles are in Motion

Two stones are thrown from the same point at the same time - one vertically upwards with speed 30ms^{-1} and one vertically downwards at 30ms^{-1} . Find how far apart the stones are after 3 seconds.

Test Your Understanding *(EdExcel M1 May 2013 (R) Q4)*

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