Essential Pre-Uni Physics A5.2

GCSE C C C A Level P P P

Work out the physical quantity corresponding to the gradient and y-intercept.

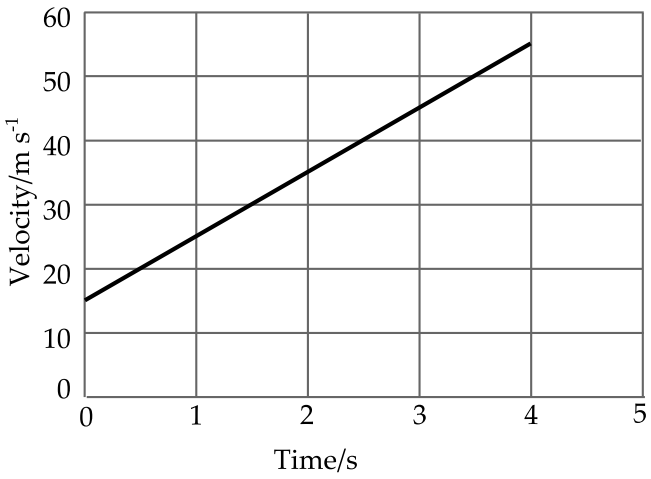

Figure 1

Graph of velocity as a function of time.

Part A Gradient

What is the gradient? Answer to 1 significant figure.

Part B y-intercept

What is the y-intercept? Answer to 2 significant figures.

Essential Pre-Uni Physics A5.4

GCSE C C C A Level C C C

Work out the physical quantity corresponding to the gradient and y-intercept.

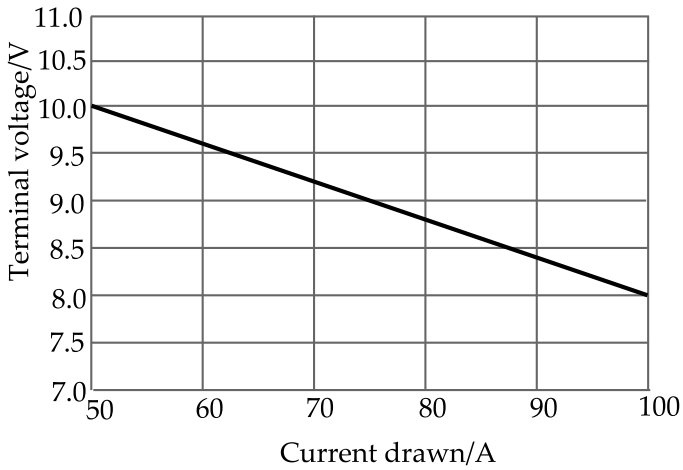

Figure 1

Graph of terminal voltage as a function of current drawn.

Part A Gradient

What is the gradient? Answer to 2 significant figures.

Part B y-intercept

What is the y-intercept? Answer to 3 significant figures.

Essential Pre-Uni Physics A5.5

GCSE C C C A Level P P P

Work out the physical quantity corresponding to the gradient and y-intercept.

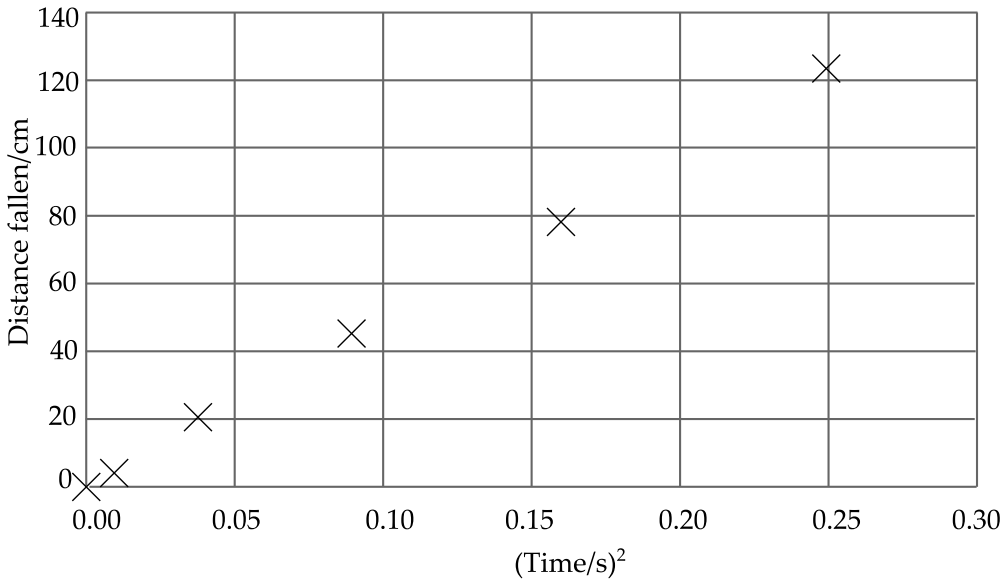

Figure 1

Graph of distance as a function of time.

Part A Gradient

What is the gradient? Answer to 1 significant figure.

Part B y-intercept

What is the y-intercept? Answer to 1 significant figure.

Essential Pre-Uni Physics A7.2

GCSE C C C A Level P P P

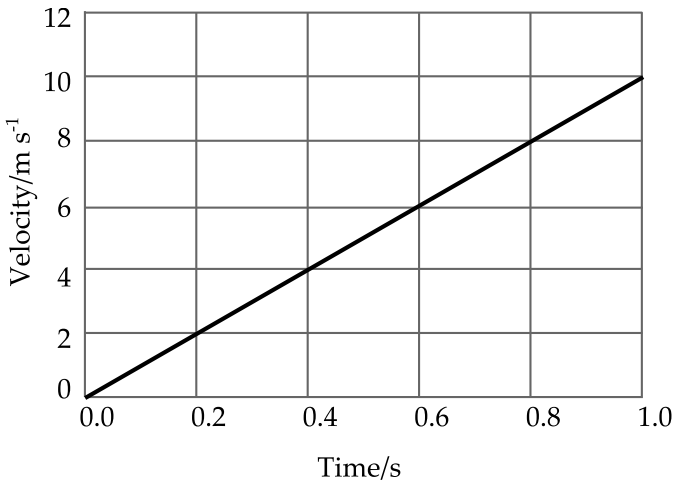

Figure 1: A graph from which the area under the graph is to be determined.

Estimate the physical quantity corresponding to the area under the line on the graph. Answer to 2 significant figures.

Essential Pre-Uni Physics A7.3

GCSE C C C A Level P P P

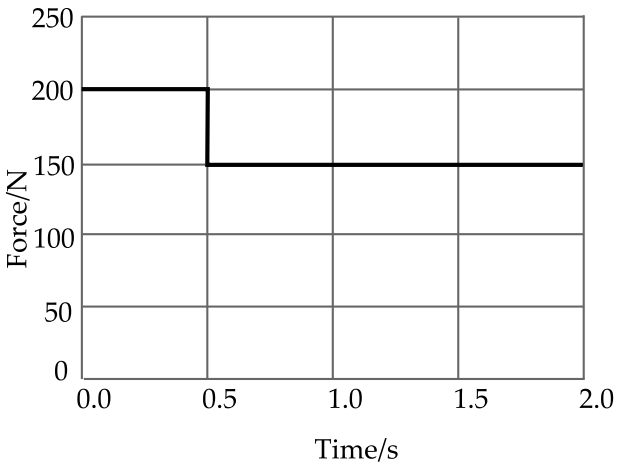

Figure 1: A graph from which the area under the graph is to be determined.

Estimate the physical quantity corresponding to the area under the line on the graph. Answer to 2 significant figures.

Essential Pre-Uni Physics A8.3

GCSE A Level

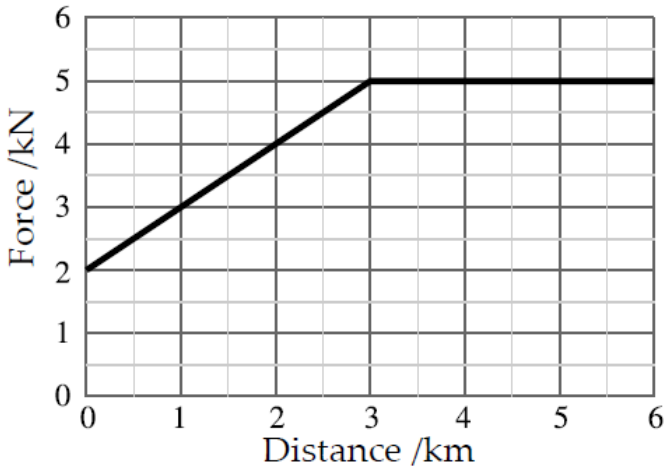

Figure 1: A graph from which the area under the line is to be determined.

What is the area under the line? Answer to 3 significant figures.

Step up to GCSE Friction 32.4

Year 9 GCSE

A $90\,\mathrm{kg}$ mass was pushed hard and let go. It is now slowing down on a $\mu = 0.090$ flat surface. Calculate its deceleration.

Step up to GCSE Friction 32.6

Year 9 GCSE

$4.0\,\mathrm{kg}$ on a flat surface has static $\mu = 0.40$ and dynamic $\mu = 0.20$.

Part A Resting

Is $8.0\,\mathrm{N}$ enough to start the mass moving from rest?

- Yes
- No

Part B Steady speed

Is $8.0\,\mathrm{N}$ enough to keep the mass moving at a steady speed?

- Yes
- No

Step up to GCSE Friction 32.7

Year 9 GCSE

An $800\,\mathrm{kg}$ car has tyres with static $\mu = 0.52$ when gripping the road, but dynamic $\mu = 0.35$ in a skid. On a horizontal road, calculate

Part A Skidding

the maximum braking force which will not cause a skid.

Part B Deceleration

the decelerating force if the driver brakes too hard and skids.

Thinking about Friction

A Level

This problem involves friction, which is not covered in some Physics A Levels. For more information please check with your teacher.

Two people are trying to push a heavy box of mass $750\,\mathrm{kg}$ on a rough, horizontal surface.

Part A Calculating a frictional force

The first person tries to push the box, applying a horizontal force of $150\,\mathrm{N}$ but they can't move it. Draw a free body diagram of the forces acting on the box, and state the magnitude of the frictional force acting on it. Give your answer to 2 significant figures.

Part B Nature of a frictional force

Now the second person also applies a force of $150\,\mathrm{N}$ to the box, but it still doesn't move. What does this tell us about the nature of the frictional force?

Part C Number needed to move block

The maximum frictional force that can be applied to the block by the rough surface is $650\,\mathrm{N}$. How many people, each applying $150\,\mathrm{N}$ to the block, will it take to move the block?

Created for isaacphysics.org by David Ho.