

# Chapter 8 Motion and energy

## EXTRA WORKSHEET 1: Graphing motion

### ADDITIONAL

#### WORKING SCIENTIFICALLY

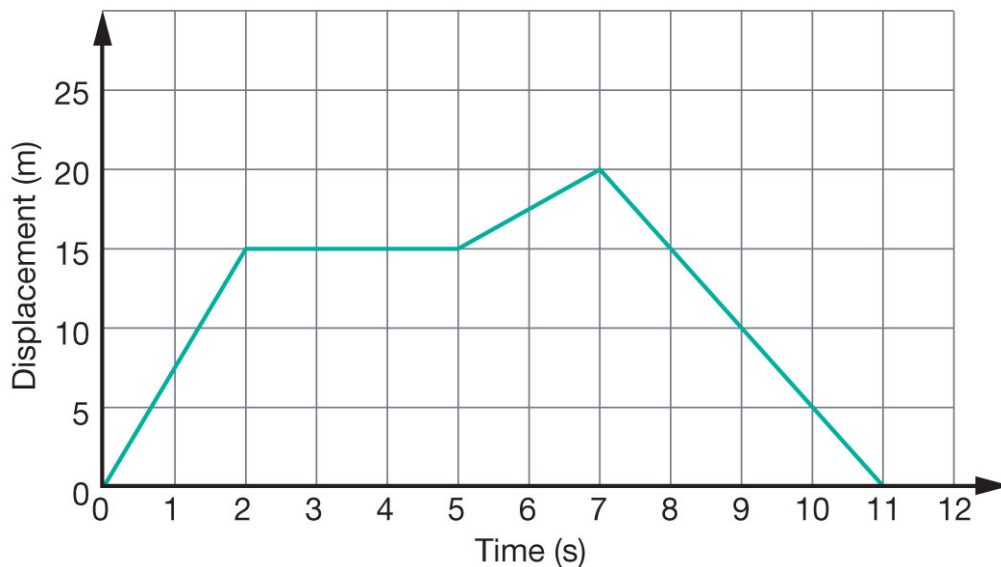
##### • NUMERACY

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

In this task, you will need to compare motion in terms of displacement, velocity and acceleration.

### Questions

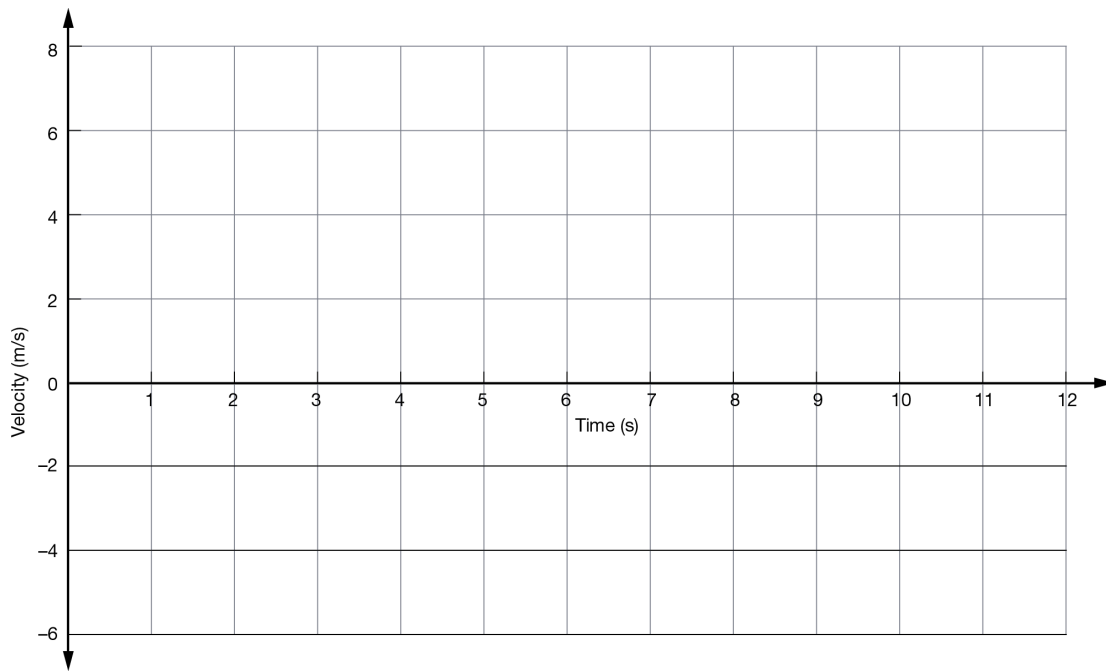
- 1 Figure 8.1.1 shows the change in position of a stray cat as it runs down a straight laneway.



**Figure 8.1.1**

Displacement graph of a cat running down a laneway.

- a Use Figure 8.1.1 to **construct** a velocity–time graph of the cat’s motion on the axis on the following page.



**b Describe** the motion of the cat as it runs along the laneway.

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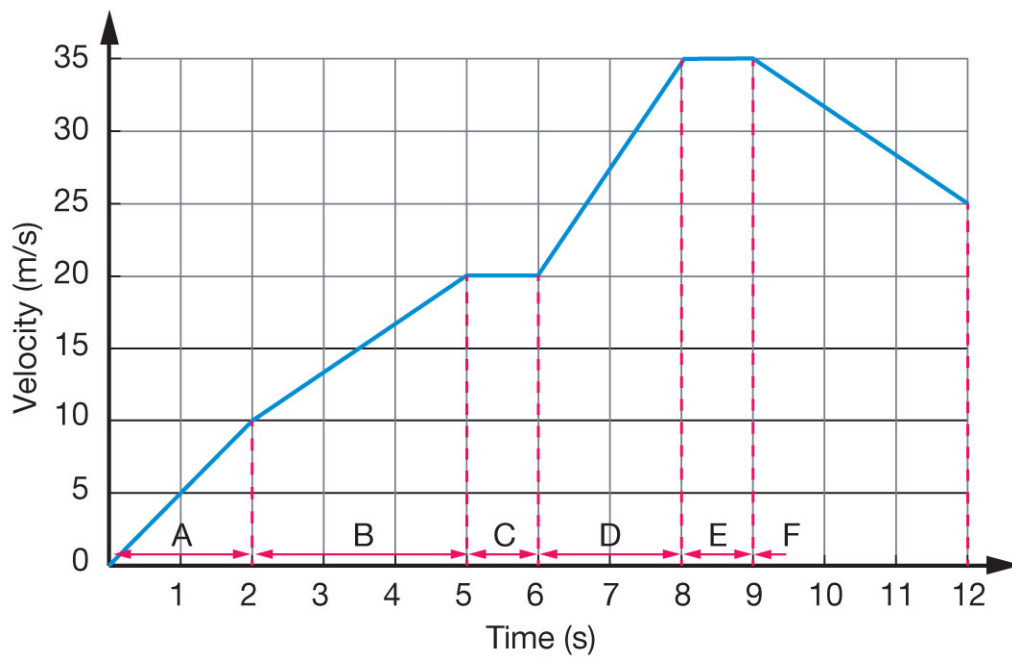


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**2** Figure 8.1.2 shows the motion of a cruise ship as it travels in a straight line from the docks to its destination.



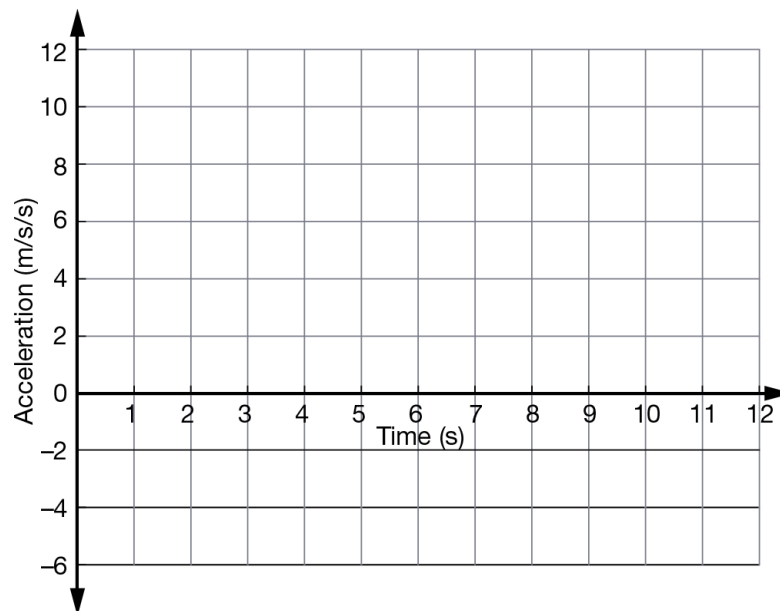
**Figure 8.1.2**

Motion of a cruise ship.

- a Calculate** the average acceleration of the ship in each of the sections marked A–F. Fill out your results in the table:

Section of motion	Average acceleration (m/s/s)
A	
B	
C	
D	
E	
F	

- b Use** your results from part **2a** to **construct** an acceleration–time graph of the ship’s motion on the axes below:



- c Identify** in which sections the ship is:
- i** speeding up: \_\_\_\_\_
  - ii** slowing down: \_\_\_\_\_
  - iii** travelling at a constant speed: \_\_\_\_\_
- d Calculate** the distance the ship sails in the first 5 seconds of its journey.