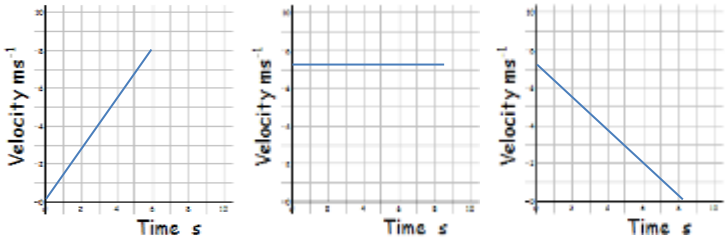
Velocity-Time Graphs HW Name:

Section A: Starting Easy

1. What is a velocity time graph?

2. Describe the motion shown in the graphs:



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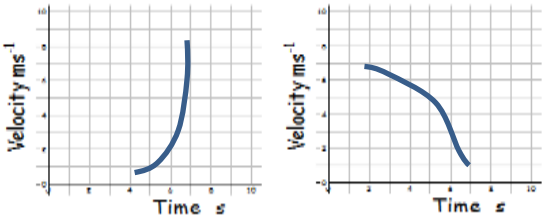
Section B: More Tricky

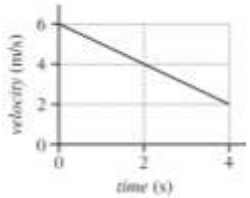
1. Describe the motion shown in the graphs:



2. What does it mean when a velocity time graph is negative?

Section C: N5 Multi Choice

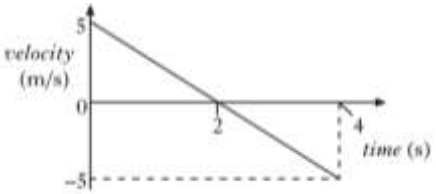
1. The graph shows how the velocity of a ball changes with time.



The acceleration of the ball is

a) $-8\ ms^2$
b) $-1\ ms^2$
c) $1\ ms^2$
d) $8\ ms^2$
e) $24\ ms^2$

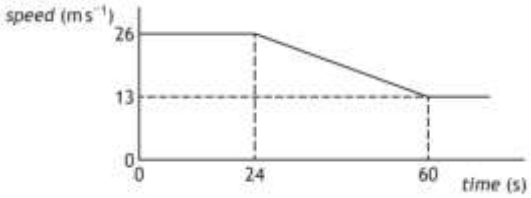
2. The graph shows how the velocity of an object varies with time.



Which row in the table shows the displacement after 4 s and the acceleration of the object during the first 4 s?

	Displacement (m)	Acceleration (ms^2)
A.	10	–10
B.	10	2.5
C.	0	2.5
D.	0	–10
E.	0	–2.5

3. As a car approaches a village the driver applies the brakes.



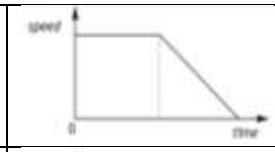
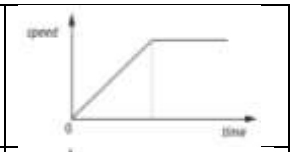
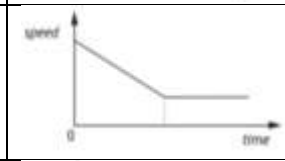
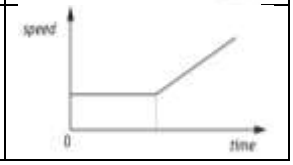
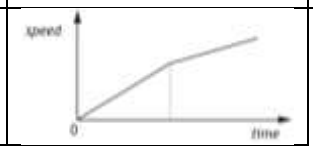
The brakes are applied for

A. 13 s
B. 20 s
C. 24 s
D. 36 s
E. 60 s

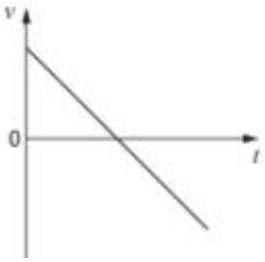
Velocity-Time Graphs HW Name:

4. A ball moves along a horizontal frictionless surface and down a slope as shown.

Which of the following graphs shows how the speed of the ball varies with time as it travels from P to Q?

<table>
<tr><td>A.</td><td>  </td><td>B.</td><td>  </td></tr>
<tr><td>C.</td><td>  </td><td>D.</td><td>  </td></tr>
<tr><td>E.</td><td>  </td><td></td><td></td></tr>
</table>

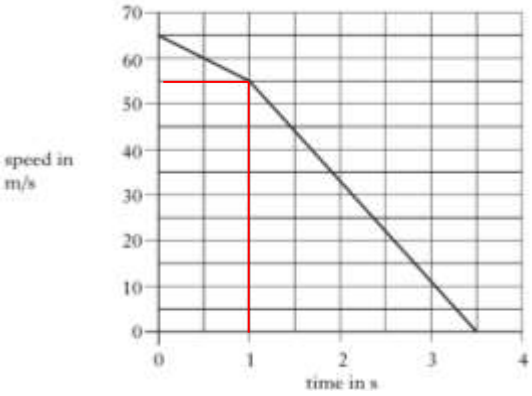
5. The graph shows how the velocity v of an object varies with time t.



The graph could represent the motion of

A. a ball falling freely downwards
B. a rocket accelerating upwards
C. a ball thrown into the air then falling back to Earth
D. a ball falling to Earth from rest then rebounding upwards again
E. a car slowing to a halt then accelerating in the same direction

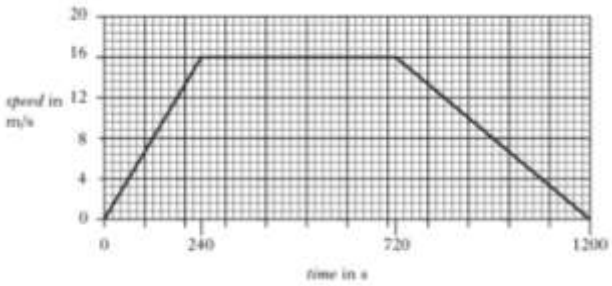
6. The graph shows the motion of the aeroplane from the point when it touches down on the carrier until it stops.



The distance travelled by the aeroplane on the carrier is

A. 128.75 m
B. 227.5 m
C. 192.5 m
D. 200 m
E. 150 m

7. The graph shows how the speed of the hovercraft varies with time for one journey from Kirkcaldy to Leith.



During which part of the journey was the object travelling at a constant speed?

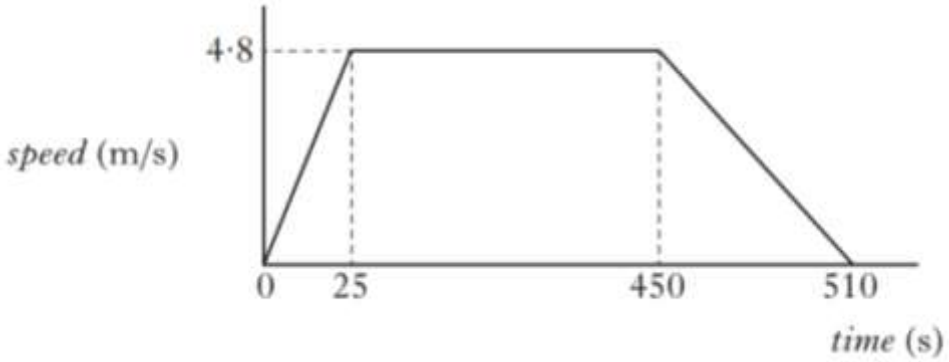
A. 0 s to 240 s
B. 240 s to720 s
C. 720 s to 1200 s
D. 0 s to 1200 s
E. 240 s to 1200 s

Velocity-Time Graphs HW Name:

Section D: N5 Extended Response

1. In a rowing event a boat moves off in a straight line.

a) A graph for the boat's motion is shown.



i. Calculate the acceleration of the boat during the first 25 s. **3**

ii. Describe the motion of the boat between 25 s and 450 s. **1**

b) The boat comes to rest after 510 s.

i. Calculate the total distance travelled by the boat. **3**

ii. Calculate the average speed of the boat. **2**

Pupil Comment:
Teacher Comment: /20