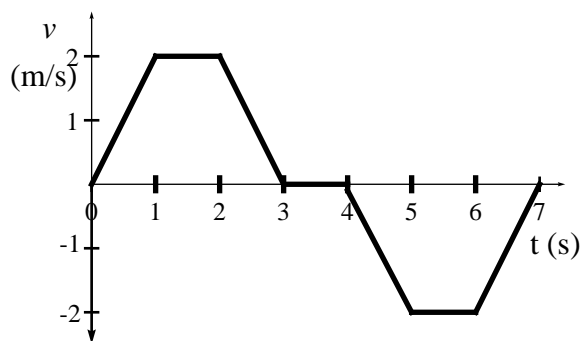


- This test forms part of our assessment of your personal learning in this program. You may not collaborate with other people, but you may consult your text book and notes.
- Attempt all questions on this test. Do not leave answers blank. Marks will be given for partial answers so show all your working.
- Your completed test is due at 9:00 am on Monday Feb 2nd.

1. The graph below shows a velocity-time diagram of a remote control car as it moves along a straight horizontal line. Assume the positive direction is to the right.



Give a *qualitative* description of the motion of the car during its journey. Include a description of its displacement, velocity and acceleration during different periods of motion.

2. A frightened zebra is running with a constant velocity of 25 m/s. A lion starting at rest from 80 m behind the zebra accelerates at  $20 \text{ ms}^{-2}$  for 2.0 s before continuing the chase at constant speed
- (a) How far have the lion and zebra traveled after 2 seconds?
- (b) What is the lion's speed after 2 seconds?
- (c) Calculate the time and the position of the point of capture.
- (d) On the same set of axes draw a sketch of position versus time for the lion and the zebra. Take  $x = 0$  to be the initial position of the lion and  $x = 80$  the initial position of the zebra. Indicate the position of both animals at 2 seconds and at the time of capture on your graph

