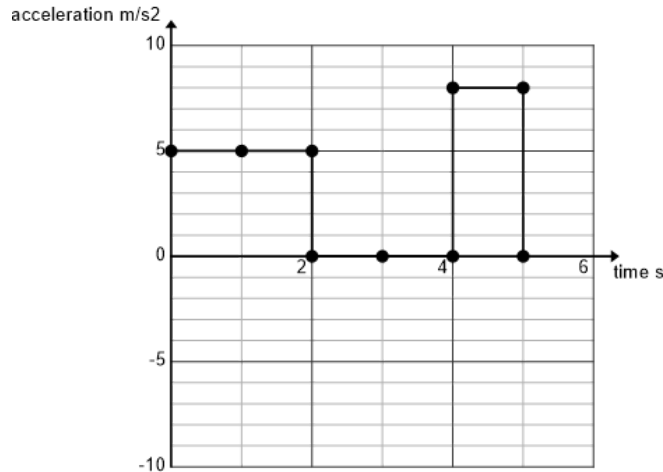


# Our Dynamic Universe

## Motion Graphs: acceleration graphs

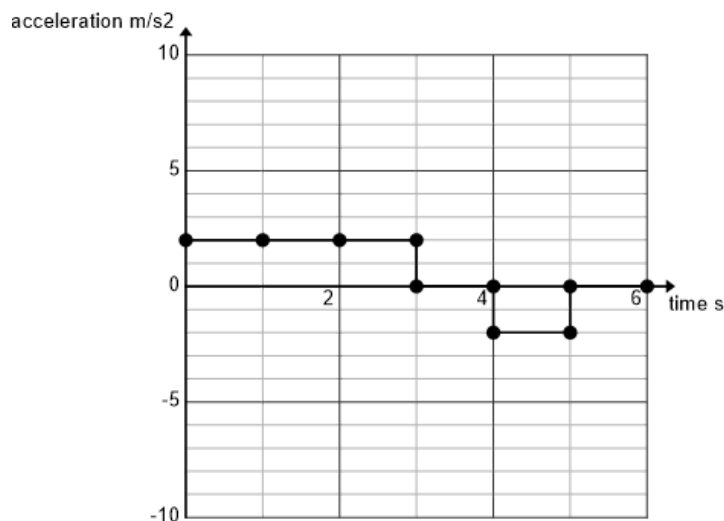


1) A test vehicle starts from rest and its acceleration graph is obtained.



- Find the velocity of the test vehicle after 2 s. [ 10 m s<sup>-1</sup> ]
- Determine the final velocity of the test vehicle [ 18 m s<sup>-1</sup> ]
- Sketch a velocity time graph of its motion.

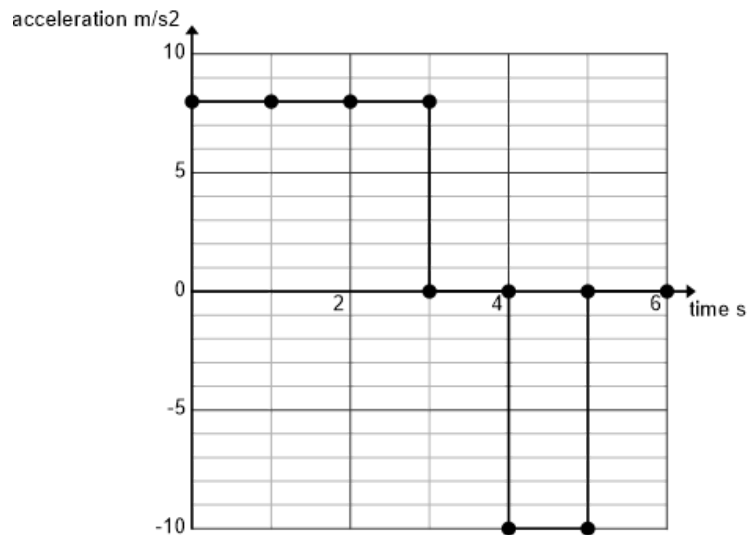
2) A graph of the acceleration of an object is obtained and displayed below.



The object's initial velocity is 2 m s<sup>-1</sup>

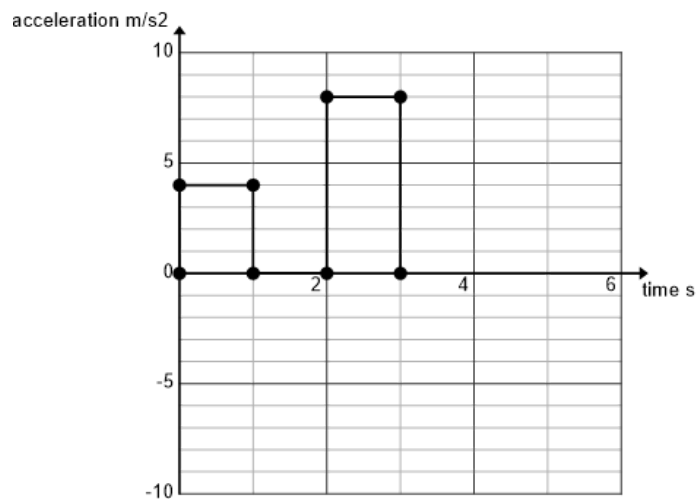
- Determine the object's velocity at 6 s. [ 6 m s<sup>-1</sup> ]
- Sketch the corresponding velocity time graph of the motion.

3) The acceleration graph of a moving object starting from rest is shown.



- Determine the velocity of the object after 3 seconds. [ 24 m s<sup>-1</sup>]
- Determine the velocity of the object at 5 s. [ 14 m s<sup>-1</sup>]
- If the velocity at 5 s was supposed to be 20 m s<sup>-1</sup> sketch the acceleration graph that would give this final velocity assuming the acceleration is the same during the first three seconds.

4) An acceleration graph is produced for a moving object which starts from rest.



- Sketch a velocity time graph of the motion and determine the object's displacement from its starting point.
- Redraw the object's acceleration graph above with an added acceleration between 4 and 6 s which will bring it back to rest.