Velocity-Time Graphs

1. State the definitions of:

   a. Velocity

   _____

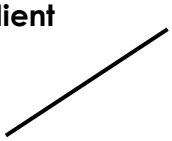
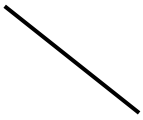
   _____

   b. Acceleration

   _____

   _____

2. Complete the table to describe the features of displacement-time graphs and velocity-time graphs.

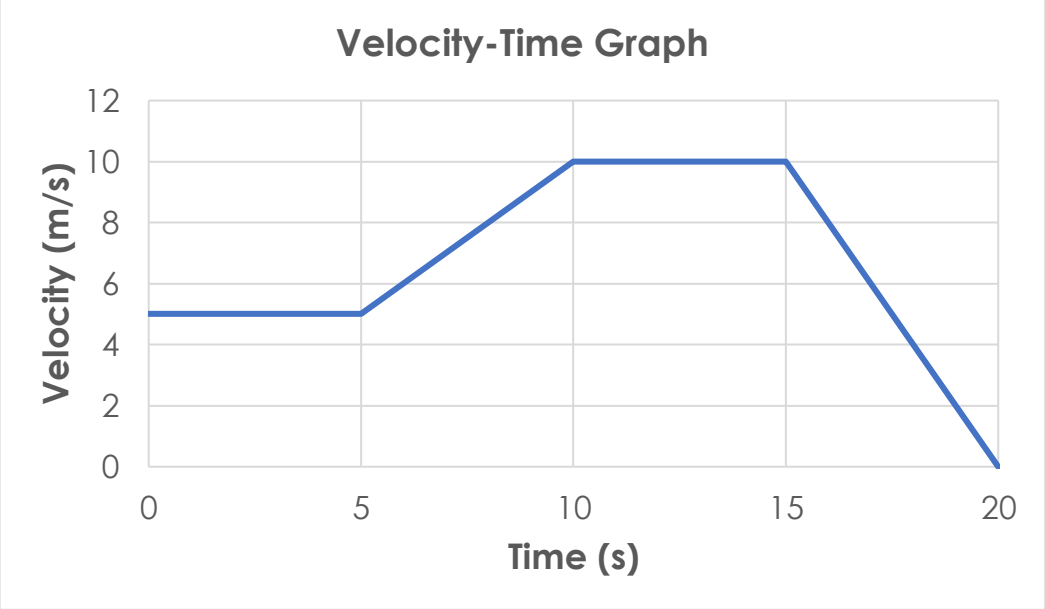
	Displacement-Time Graph	**Velocity-Time Graph**
Horizontal line		
Positive gradient 		
Negative gradient 		
What can be calculated from the gradient?		

3. Describe how to calculate the distance travelled by an object from a velocity-time graph.

   _____

   _____

4. Use the following velocity-time graph to answer the questions.



a. Describe the motion of this object between:

i. 0 and 5 seconds

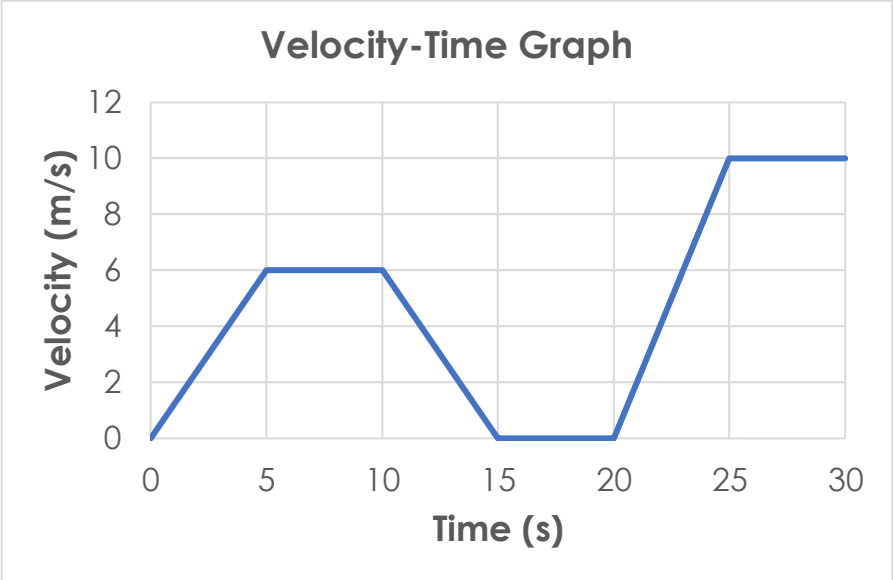
ii. 5 and 10 seconds

iii. 10 and 15 seconds

iv. 15 and 20 seconds

b. Calculate the distance travelled by this object during the 20 seconds.

5. Use the following velocity-time graph to answer the questions.



a. Describe the motion of this object between:

i. 0 and 5 seconds

ii. 5 and 10 seconds

iii. 10 and 15 seconds

iv. 15 and 20 seconds

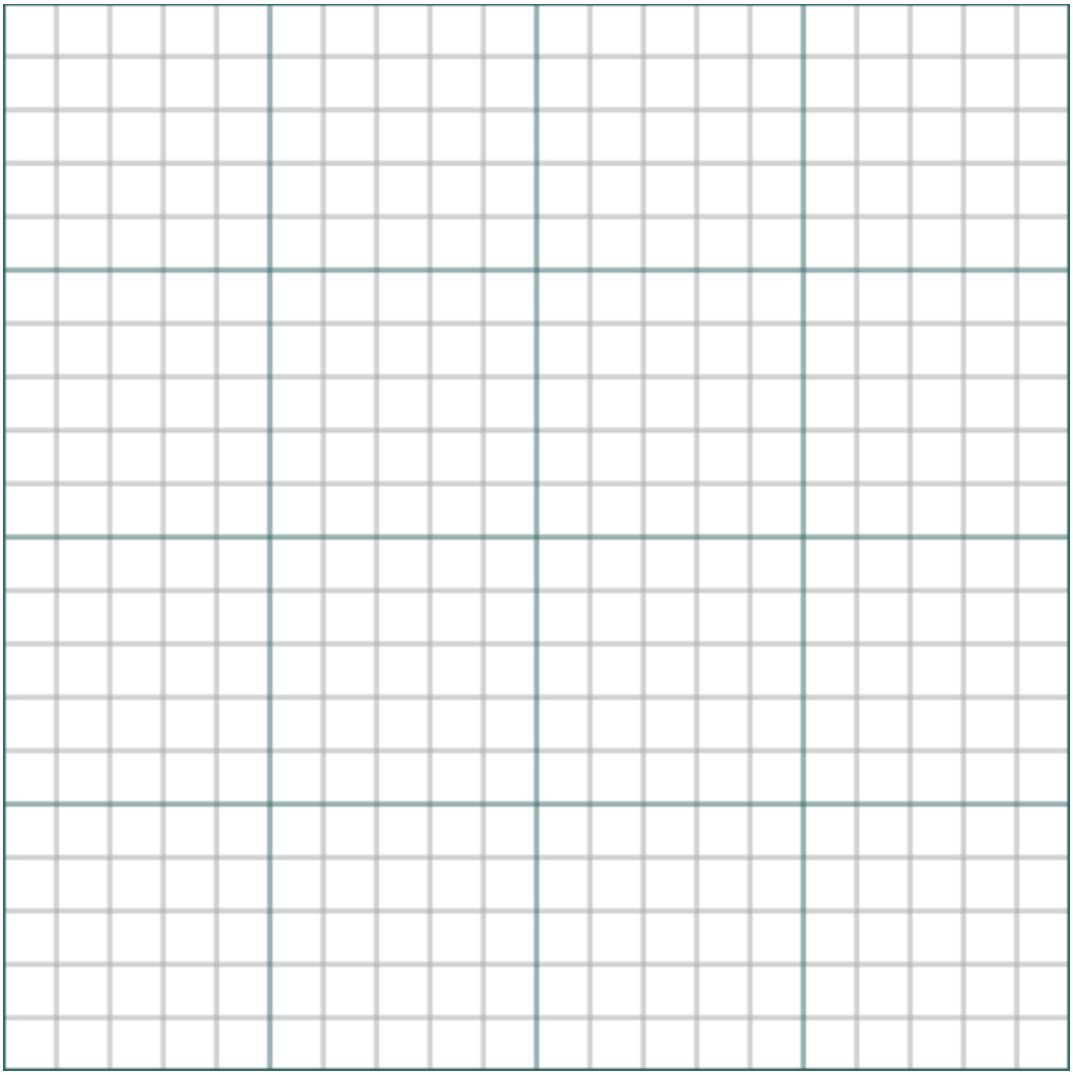
v. 20 and 25 seconds

vi. 25 and 30 seconds

b. Calculate the distance travelled by this object during the 30 seconds.

6. Use the information to draw a velocity-time graph to describe the motion of the following journey:

A sprinter lines up at the start line. After the starting gun he accelerates to 10 m/s within 2 seconds. He continues running at 10 m/s for another 8 seconds until he reaches the finish line. After he crosses the finish line he slows down to a jog (5 m/s) within 4 seconds. He then slows down to a stop which takes another second.



Calculate the total distance travelled by the sprinter using your velocity-time graph.