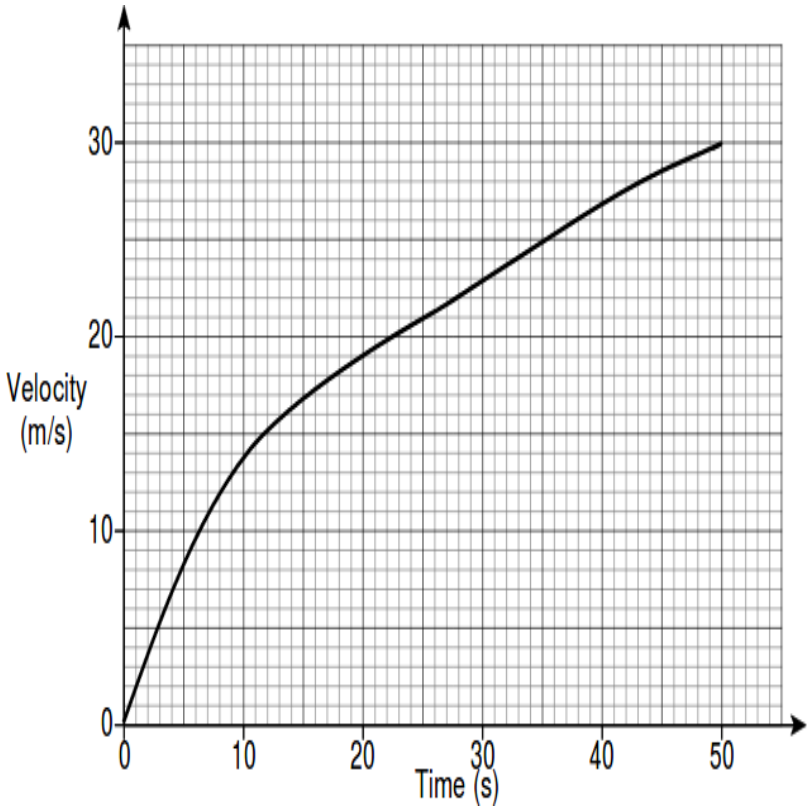
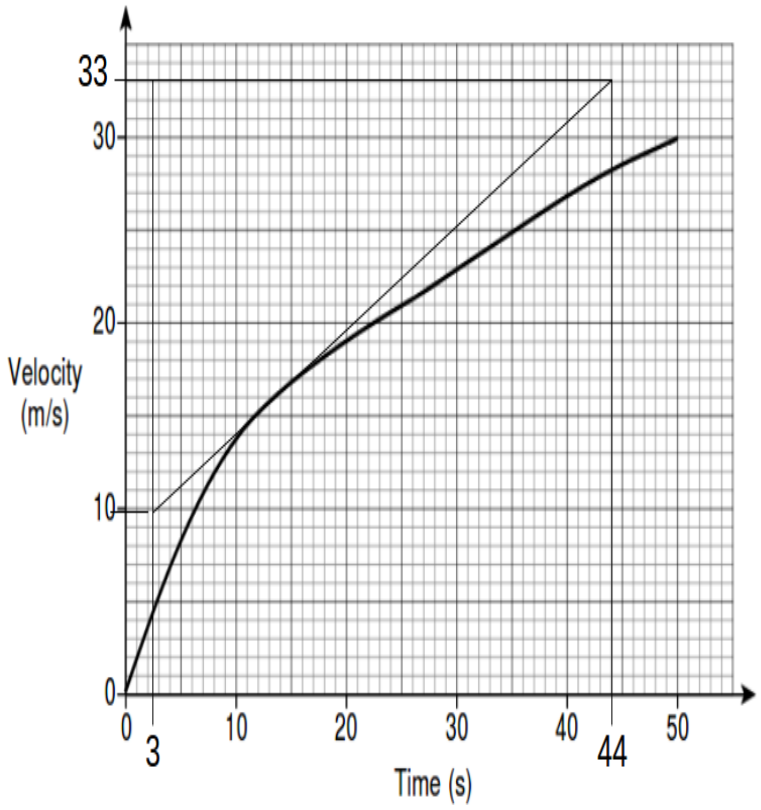
The Gradient From a Graph

Finding the gradient at a point directly from a graph is a very useful skill. It involves drawing a tangent to the graph at the point where the gradient is required, and constructing a right angled triangle with sides parallel to the axes. The gradient of the graph is then the height of the triangle divided by the base, positive if the graph slopes up to the right and negative if it is sloping down to the right.

The slope of a velocity times graph at a point is equal to the acceleration at that point. The graph below is a velocity time graph.



Draw a tangent at $t = 15/;s$ and construct a right angled triangle as shown.



The slope, and the acceleration is then $a = \frac{33 - 10}{44 - 3} = 0.535\ m/s^2$