Area under a curve and gradient of a curve
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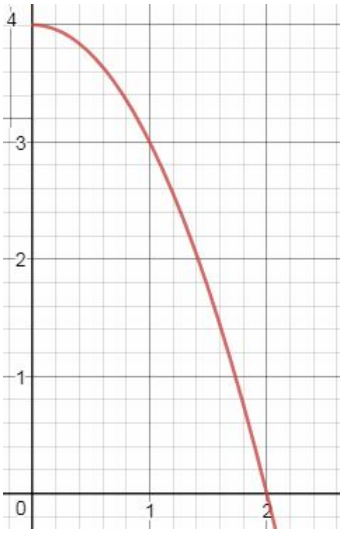
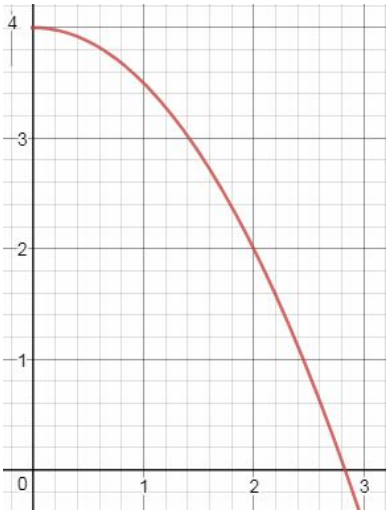
(1) Use one trapezium and one triangle to estimate the area under the curve from $x = 0$ to $x = 2$.

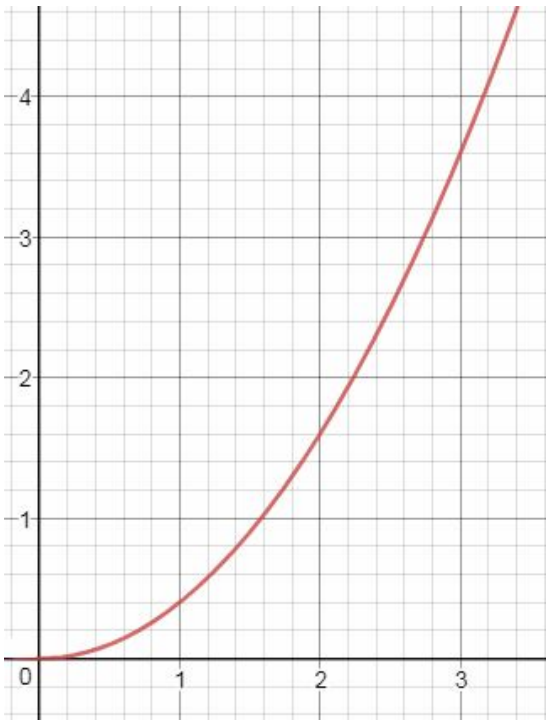


(2) Use 2 trapezia to estimate the area under the curve from $x = 0$ to $x = 2$

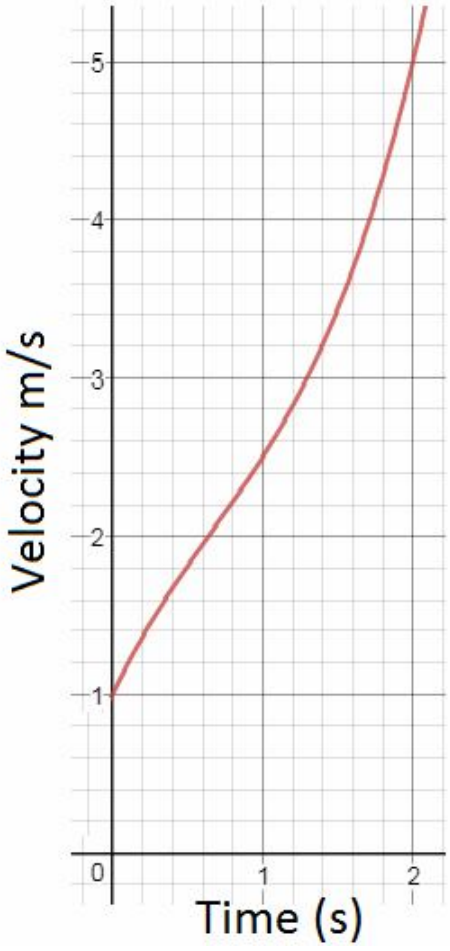


(3) Use 1 trapezium to estimate the area under the curve below from $x = 0$ to $x = 6$

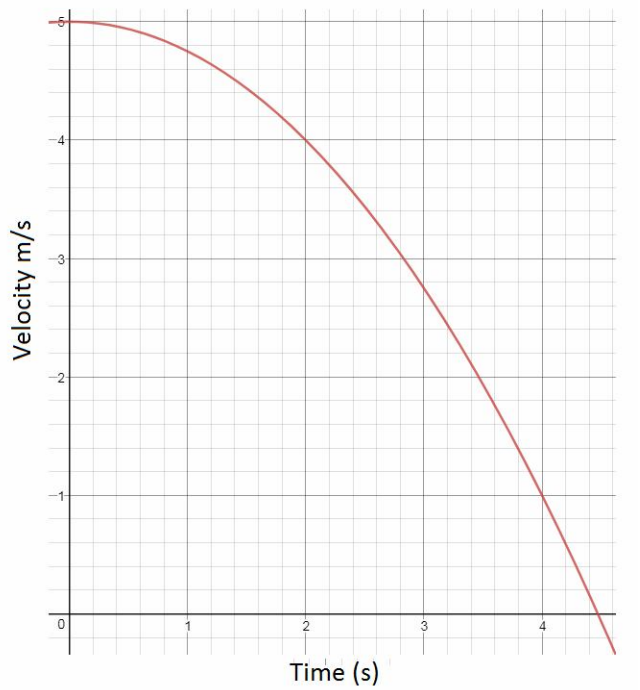
(4) Use 2 trapezia to estimate the area under the curve from $x = 1$ to $x = 2$



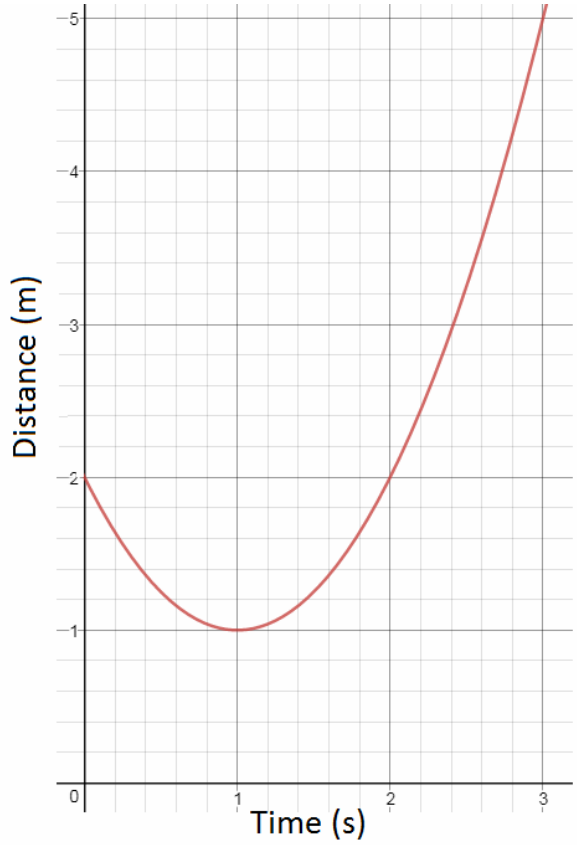
(5) The velocity/time graph below shows the first two seconds of a journey. Find an estimate to the distance travelled in the first 2 seconds.



(6) The velocity/time graph below shows the first 4.5 seconds of a journey. Find an estimate to the distance travelled in the first 4 seconds.



(7) (a) The distance/time graph below shows the first 3 seconds of a journey. By considering the gradient of the curve, find the speed (velocity) of the object at the times (i) 2 seconds (ii) 3 seconds.

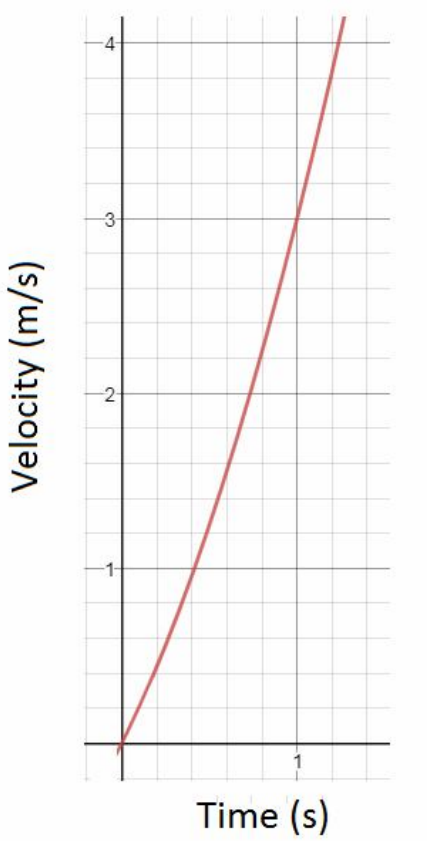


(b) Find the time when the velocity is 0.

(8) The velocity/time graph below shows the first 1.5 seconds of a journey.

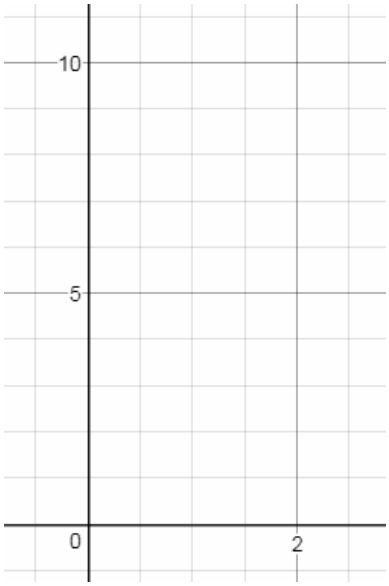
(a) Find an estimate to the distance travelled in the first 1 second.

(b) Find an estimate for the acceleration at the time when t = 1 second.



(9) The function $V = 2t^2$ models the velocity (V) of an object after (t) seconds.

(a). Use the grid below to plot the first 2 seconds of motion



(b) Use the graph to estimate the acceleration at 2 seconds.

(c) Use the graph to estimate the distance travelled in the first 2 seconds.