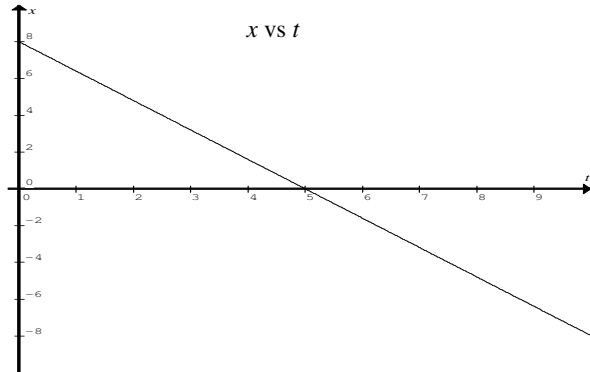


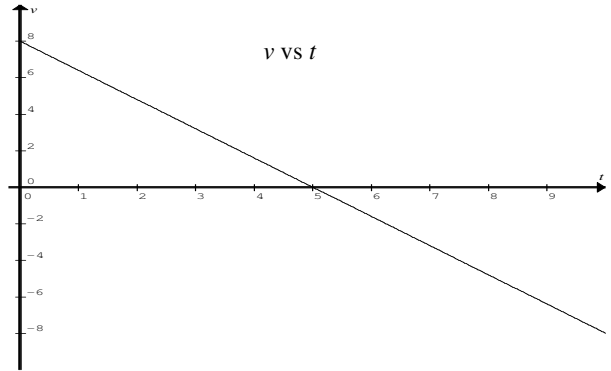
Physics worksheet – Graphs of position, velocity and acceleration vs time (for a particle moving in a straight line)

Notations and units:  $t$  time (s),  $x$  position,  $d$  total distance travelled (m),  $s$  displacement (m),  $v$  velocity ( $\text{ms}^{-1}$ ),  $a$  acceleration ( $\text{ms}^{-2}$ ), + up/east

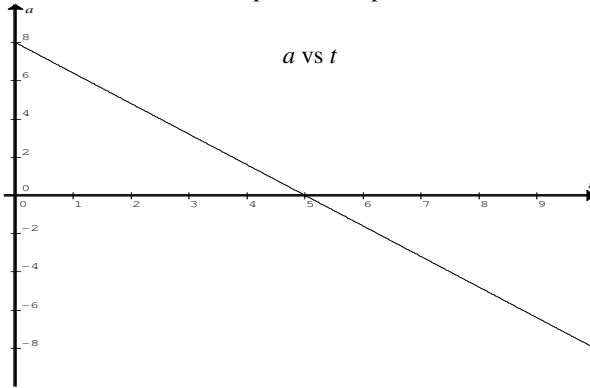
Q1 Find  $x$ ,  $d$ ,  $s$ ,  $v$  and  $a$  at  $t = 8$ .



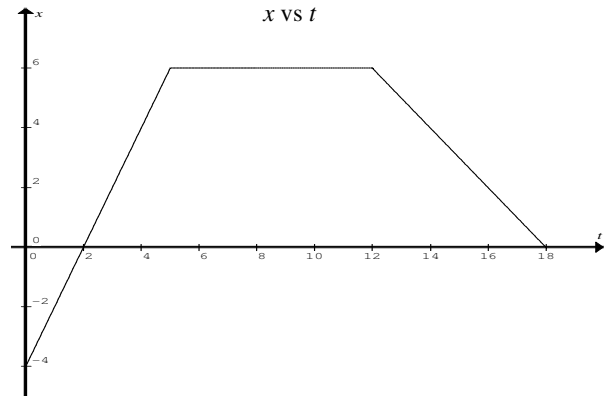
Q2 The particle is at  $x = -10$  initially. Find  $d$ ,  $s$ ,  $x$ ,  $v$  and  $a$  at  $t = 8$ . Find the furthest distance from its initial position in the first 10 s.



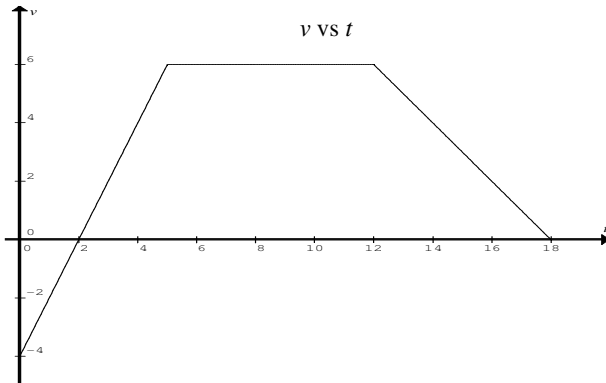
Q3 The particle moves at  $+5 \text{ ms}^{-1}$  initially. Find  $a$  and  $v$  at  $t = 8$ . Find the maximum speed of the particle in the first 10 s.



Q4 Find  $x$ ,  $d$ ,  $s$ ,  $v$  and  $a$  at  $t = 16$ .



Q5 The particle is at  $x = -50$  initially. Find the  $d$ ,  $s$ ,  $x$ ,  $v$  and  $a$  at  $t = 16$ . Find the furthest distance from its initial position in the first 16 s.



Q6 The particle is at  $x = +20$  initially. Estimate  $d$ ,  $s$ ,  $x$ ,  $v$  and  $a$  at  $t = 18$ . Estimate the furthest distance from its initial position in the first 18 s.

