











4. A car is moving on a straight horizontal road. At time  $t = 0$ , the car is moving with speed  $20 \text{ m s}^{-1}$  and is at the point  $A$ . The car maintains the speed of  $20 \text{ m s}^{-1}$  for 25 s. The car then moves with constant deceleration  $0.4 \text{ m s}^{-2}$ , reducing its speed from  $20 \text{ m s}^{-1}$  to  $8 \text{ m s}^{-1}$ . The car then moves with constant speed  $8 \text{ m s}^{-1}$  for 60 s. The car then moves with constant acceleration until it is moving with speed  $20 \text{ m s}^{-1}$  at the point  $B$ .

(a) Sketch a speed-time graph to represent the motion of the car from  $A$  to  $B$ . (3)

(b) Find the time for which the car is decelerating. (2)

Given that the distance from  $A$  to  $B$  is 1960 m,

(c) find the time taken for the car to move from  $A$  to  $B$ . (8)















