



The diagram shows a velocity-time graph representing the motion of two cars *A* and *B* which are both travelling along a horizontal straight road. At time $t = 0$, car *B*, which is travelling with constant speed 12 ms^{-1} , is overtaken by car *A* which has initial speed 20 ms^{-1} .

From $t = 0$ car *A* travels with constant deceleration for 30 seconds. When $t = 30$ the speed of car *A* is 8 ms^{-1} and the car maintains this speed in its subsequent motion.

- (a) Calculate the deceleration of car *A*. [2]
- (b) Determine the value of t when *B* overtakes *A*. [4]