4 A trolley of mass 930 g is held on a horizontal surface by means of two springs, as shown in Fig. 4.1.

For Examiner's Use

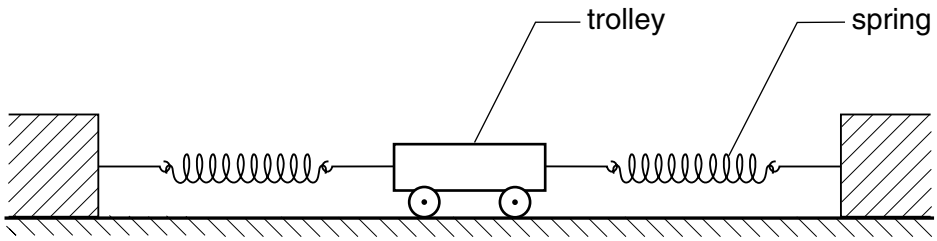

Fig. 4.1

The variation with time t of the speed v of the trolley for the first 0.60 s of its motion is shown in Fig. 4.2.

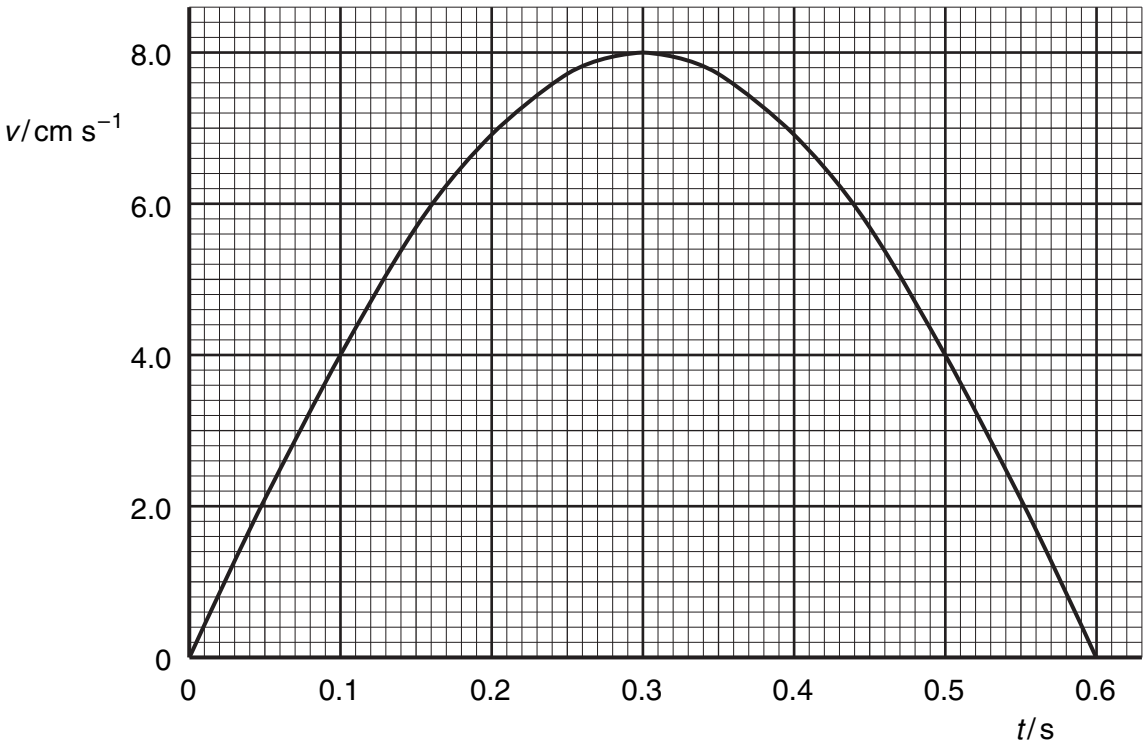

Fig. 4.2

(a) Use Fig. 4.2 to determine

(i) the initial acceleration of the trolley,

acceleration = ... m s^{-2} [2]

(ii) the distance moved during the first 0.60 s of its motion.

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distance = ……..…… m [3]

(b) (i) Use your answer to **(a)(i)** to determine the resultant force acting on the trolley at time $t = 0$.

force = …….. N [2]

(ii) Describe qualitatively the variation with time of the resultant force acting on the trolley during the first 0.60 s of its motion.

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..... [3]