

A particle A , moving along a straight horizontal track with constant speed 8 m s^{-1} , passes a fixed point O . Four seconds later, another particle B passes O , moving along a parallel track in the same direction as A . Particle B has speed 20 m s^{-1} when it passes O and has a constant deceleration of 2 m s^{-2} . B comes to rest when it returns to O .

- (a) Find expressions, in terms of t , for the displacement from O of each particle t seconds after B passes O . [3]

[illegible]

(b) Find the values of t when the particles are the same distance from O . [3]

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(c) On the given axes, sketch the displacement-time graphs for both particles, for values of t from 0 to 20. [3]

