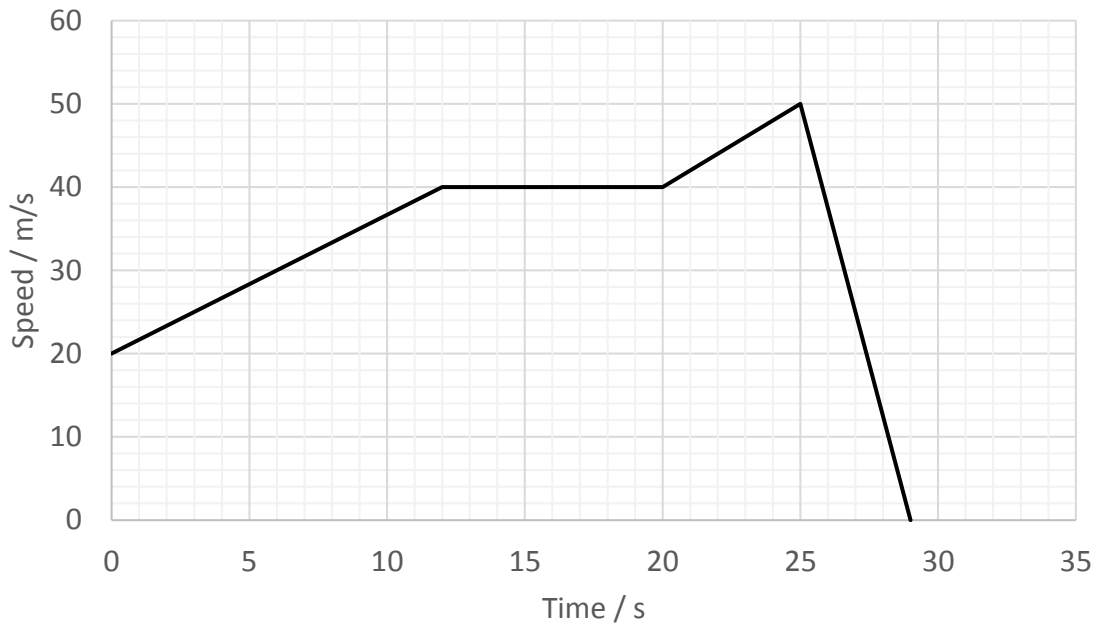


Question #72489, Physics / Other

A car starts with a velocity of 20 m/s and attained a velocity of 40 m/s in 12 s. If it maintained this velocity for another 8 s after it increased its velocity to 50 m/s in a further 5 s, after which it is uniformly retarded in another 4 s. Using a velocity-time graph calculate the total distance covered by the car

Solution



The distance traveled by the car is equal to the area under the v-t graph.

0 – 12 s:

$$d_1 = 12 \times \frac{20 + 40}{2} = 360 \text{ m}$$

12 – 20 s:

$$d_2 = 8 \times 40 = 320 \text{ m}$$

20 – 25 s:

$$d_3 = 5 \times \frac{40 + 50}{2} = 225 \text{ m}$$

25 – 29 s:

$$d_4 = \frac{4 \times 50}{2} = 100 \text{ m}$$

$$d = 360 + 320 + 225 + 100 = 1,005 \text{ m.}$$

Answer: the total distance is 1,005 m.

Answer provided by [AssignmentExpert.com](https://www.assignmentexpert.com)