

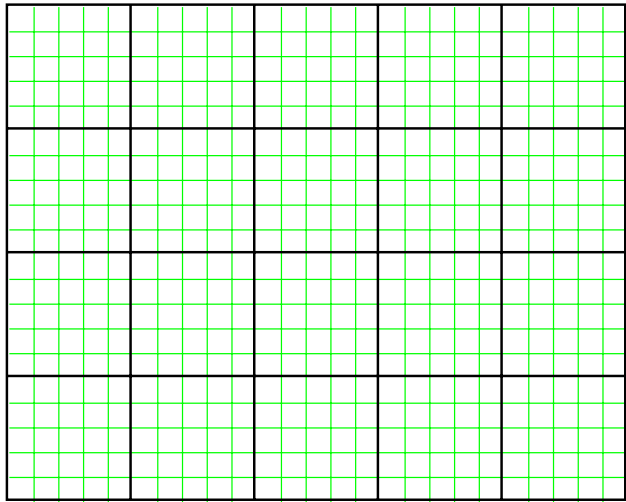
Acceleration Homework

Name & Set

1 A tube train starts from rest at a station and accelerates to 32 m/s in 8 seconds. It then moves with constant velocity for 32 seconds until it gets near the next station when it decelerates. It takes 10 seconds to come to rest.

(a) What is the total journey time? _____ [2]

(b) Draw a velocity-time graph to represent this journey on the grid below.



(c) Calculate its acceleration in the first 8 seconds.

_____ [2]

(d) Calculate the acceleration in the final 10 seconds.

_____ [2]

(e) Use the graph to find the total distance travelled by the train.

_____ [2]

2 An advertisement for a car claims that it can accelerate from rest to a velocity of 32 m/s in 8 seconds. Its top speed is 60 m/s.

(a) Calculate the acceleration of this car in m/s^2 .

_____ [3]

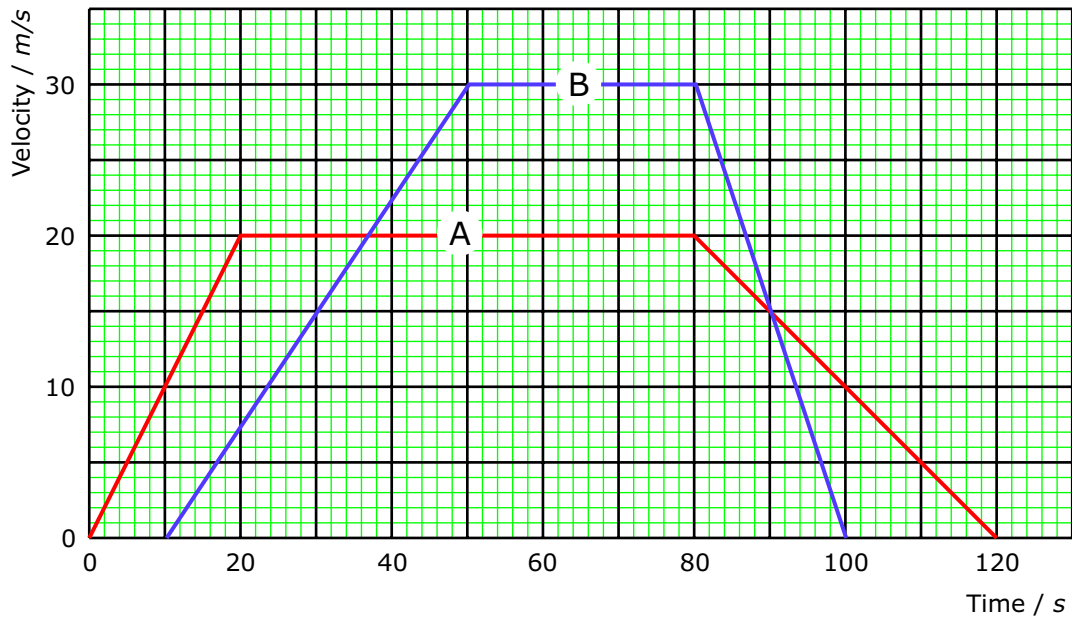
(b) How fast is the car moving after 4 seconds?

_____ [3]

(c) If it continues to accelerate at this rate How long does it take to get to its maximum velocity?

[3]

3 The velocity-time graph below shows the journeys of two cars, A and B, which travel the same route.



(i) Which car sets off first? _____ [1]

(ii) Which car has the greatest initial acceleration? _____ [1]

(iii) Which car reaches the highest speed? _____ [1]

(iv) Which car travels the greatest distance? _____

[4]

(v) Which car has the highest average speed? _____

[2]

(vi) Which car reaches its destination first? _____

[1]