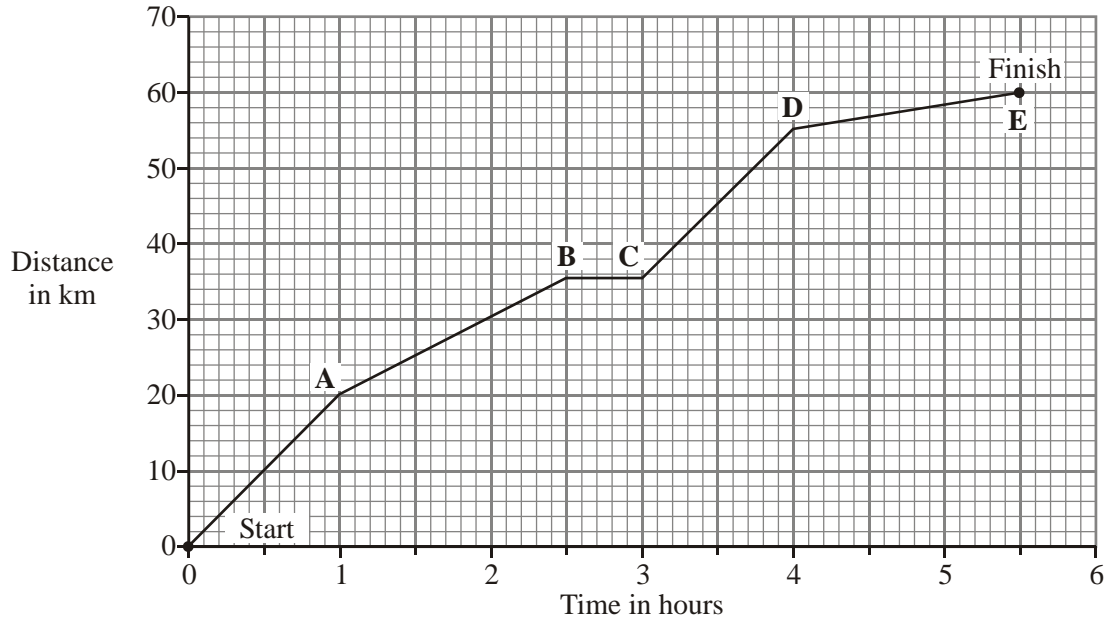


Forces and motion

1. A horse and rider take part in a long distance race. The graph shows how far the horse and rider travel during the race.

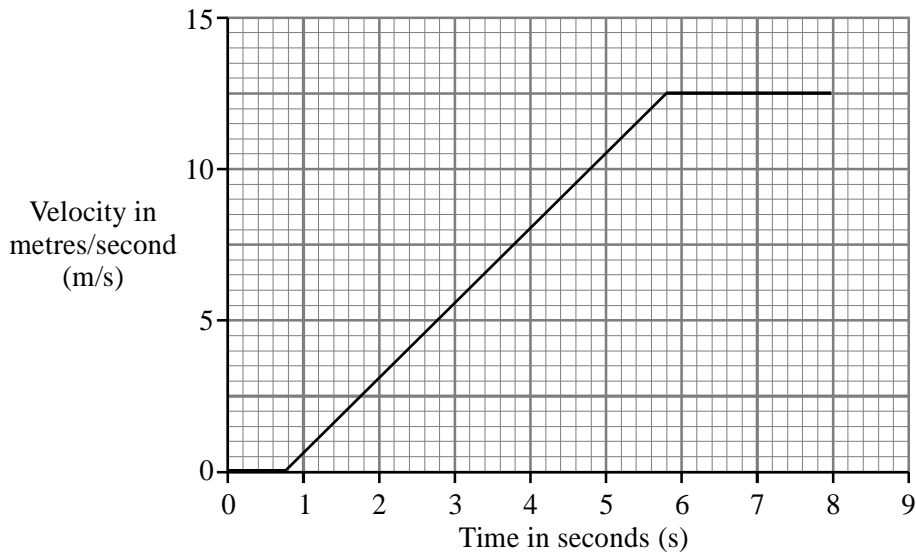


- (a) What was the distance of the race?
 distance = km (1)
- (b) How long did it take the horse and rider to complete the race?
 (1)
- (c) What distance did the horse and rider travel in the first 2 hours of the race?
 distance = km (1)
- (d) How long did the horse and rider stop and rest during the race?
 (1)
- (e) Not counting the time it was resting, between which two points was the horse moving the slowest?
 and
 Give a reason for your answer.

(2)
(Total 6 marks)

Unit P2, P2.1.2

2. A car travelling along a straight road has to stop and wait at red traffic lights. The graph shows how the velocity of the car changes after the traffic lights turn green.



- (a) Between the traffic lights changing to green and the car starting to move there is a time delay. This is called the reaction time. Write down **one** factor that could affect the driver's reaction time.

.....

(1)

- (b) Calculate the distance the car travels while accelerating. Show clearly how you work out your answer.

.....

.....

Distance =metres

(3)

- (c) Calculate the acceleration of the car. Show clearly how you work out your final answer and give the units.

.....

.....

.....

Acceleration =

(4)

(d) The mass of the car is 900 kg.

(i) Write down the equation that links acceleration, force and mass.

.....

(1)

(ii) Calculate the force used to accelerate the car. Show clearly how you work out your final answer.

.....

.....

Force = newtons

(2)

(Total 11 marks)