1. Diagram 1 shows the speed-time graph of a particle for a period of 10 seconds. Given that the total distance travelled in the first 6 seconds is twice of the total distance travelled in the last 4 seconds.

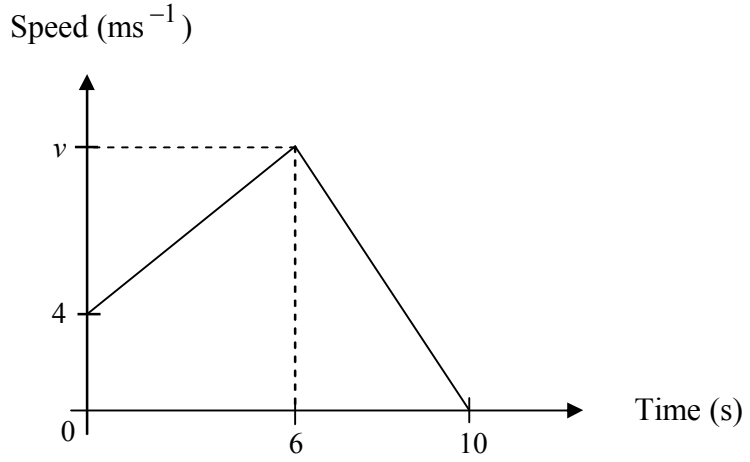

DIAGRAM 5

(a) Calculate the value of *v*.

(b) Calculate the rate of change of speed, in ms^{-2}, in the first 3 seconds.

2. Diagram 2 shows the speed-time graph of the movement of a particle for a period of 35 seconds.

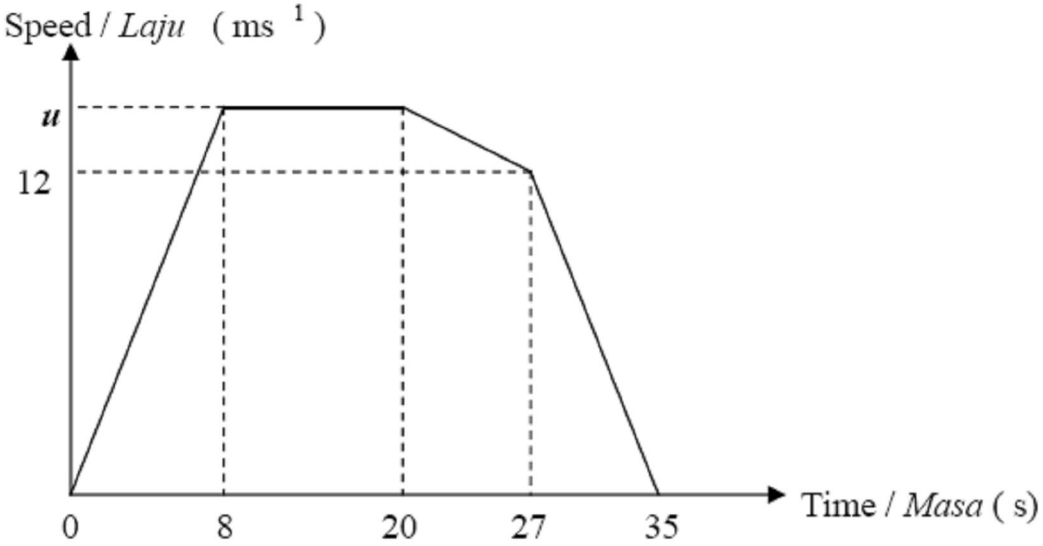

DIAGRAM 2

Given the distance traveled in the first eight seconds is 72 meter.

Calculate

(a) the value of *u*

(b) the rate of change in speed , in ms^{-2} , of the particle in the last eight seconds.

(c) the average speed , in ms^{-1} , of the particle for the whole journey.

3. Diagram 3 shows the speed-time graph movement of a particle for a period of 26 seconds.

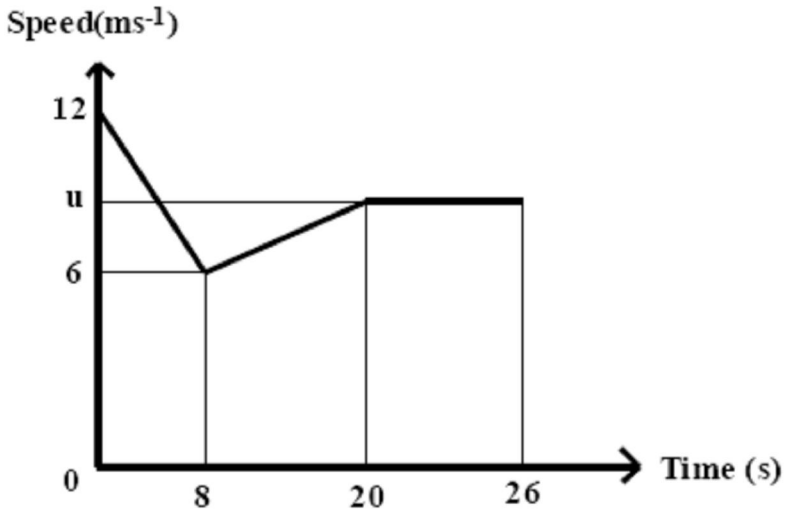

DIAGRAM 3

Calculate

(a) State the period of time that the particle moves with uniform speed.

(b) The rate of change in speed, in ms^{-2}, in the first 8 seconds.

(c) The value of u, if the distance traveled in the last 18 seconds is 156m.

4. Diagram 4 shows the speed-time graph of a particle for a period of 15 seconds.

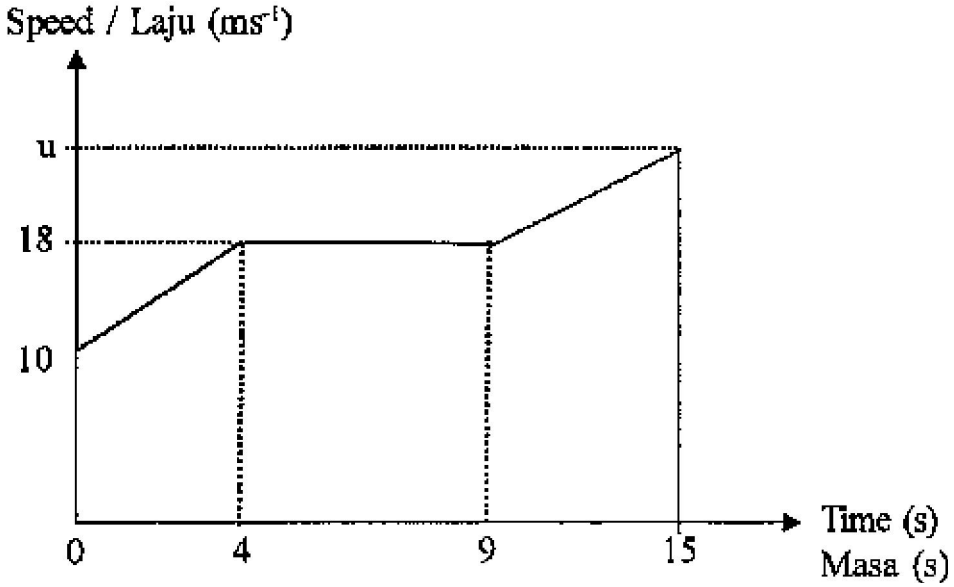

DIAGRAM 4

a) State the length of time, in *s*, when the particle moves with uniform speed.

b) Calculate the rate of change of speed in ms^{-2} in the first 4 seconds.

c) Calculate the value of *u*, if the total distance traveled by the particle in the last 11*s* is 207m.

5. Diagram 5 shows the distance-time graph for the journey of a particle for the period of 30 s.

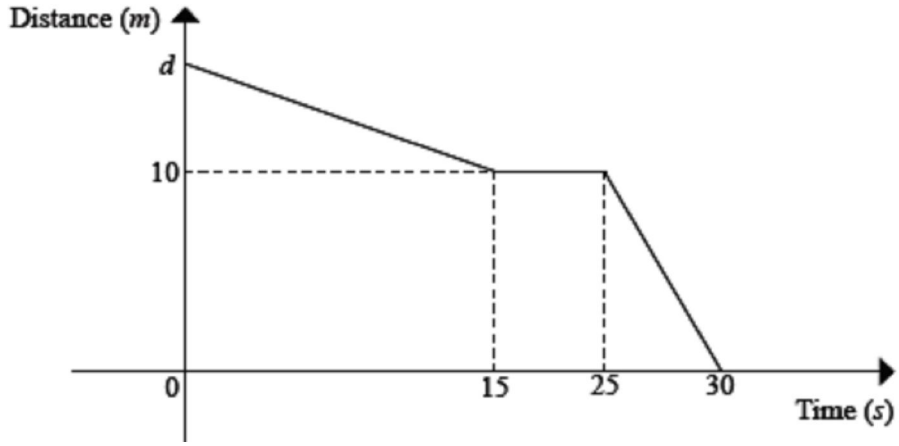

DIAGRAM 5

(a) State the length of time, in seconds, during which the particle is stationary.

(b) Calculate the speed of the particle in the last 5 s.

(c) Calculate the value of *d*, if the average speed for the whole journey is 2 ms $^{-1}$

6. Diagram 6 shows the speed-time graph of an object over a period of 80 seconds.

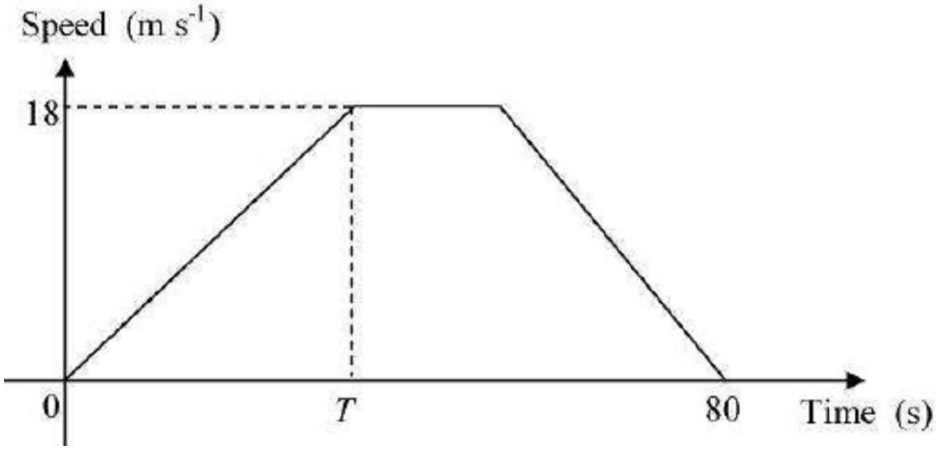

DIAGRAM 6

The object started from rest, attained a speed of 18 ms^{-1} then traveled at a constant speed before slowing down until it came to rest at 80 seconds.

a) Given that the rate if change of speed during the first part of the motion was 0.5 ms^{-2}, calculate the value of *T*.

b) The total distance traveled during 80 seconds was 855 meters, Calculate the period of time taken by the object to travel at uniform speed.

7. The Diagram 7 shows the speed-time graph of a particle for a period of *t* seconds.

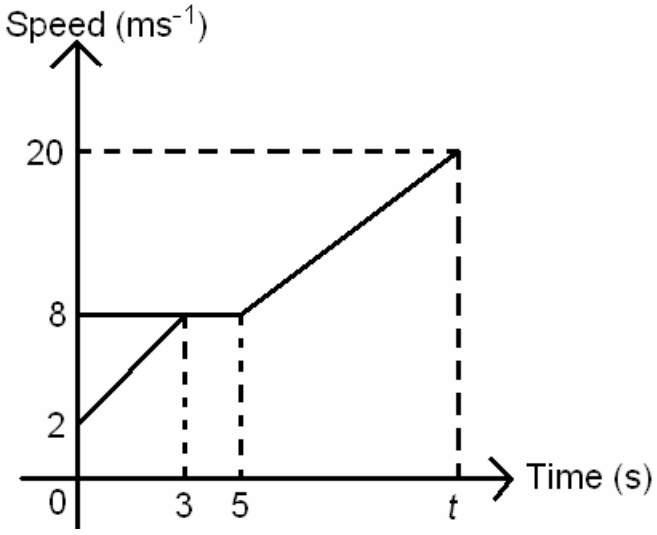

DIAGRAM 7

a) State the length of time, in *s*, that the particle moves with uniform speed.

b) Calculate the rate of change of speed, in ms^{-2}, in the first 3 seconds.

c) Given that the total distance traveled for the period of t seconds is 143 meters, find the value of *t*.

8. The diagram 8 shows the distance-time graph of a car on a to-and-fro trip for a period of *t* minutes.

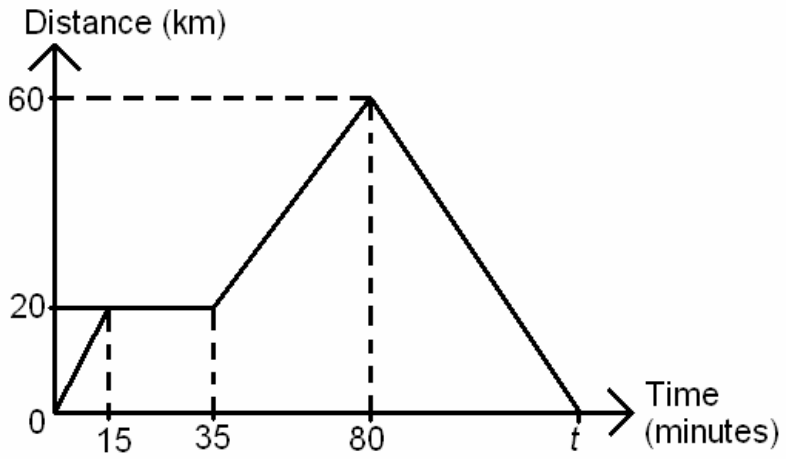

DIAGRAM 8

a) State the length of time, in minutes, that the car is stationary.

b) Calculate the average speed, in km minute^{-1}, of the car in the first 80 minutes.

c) Calculate the value of *t* for which the average speed of the car on its return trip is 1.2 km minute^{-1}.

9. The diagram 9 shows the speed-time graph of a particle for a period of 28 seconds.

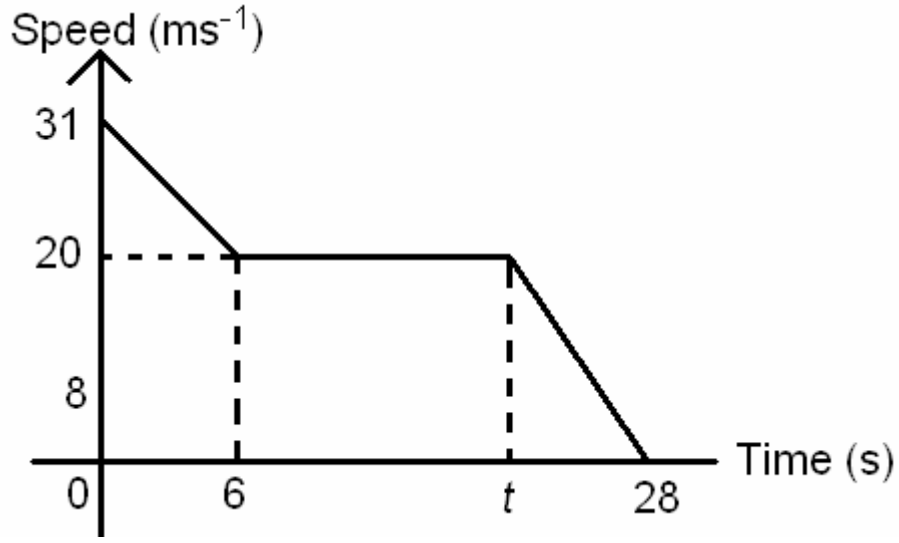

DIAGRAM 9

a) State the uniform speed, in ms^{-1}, of the particle.

b) The distance traveled by the particle with uniform speed is 300 meters. Calculate

   i. the value of *t*,

   ii. the average speed, in ms^{-1}, of the particle for the period of 28 seconds.

10. The Diagram 10 shows the speed-time graph of a particle for a period of 25 seconds.

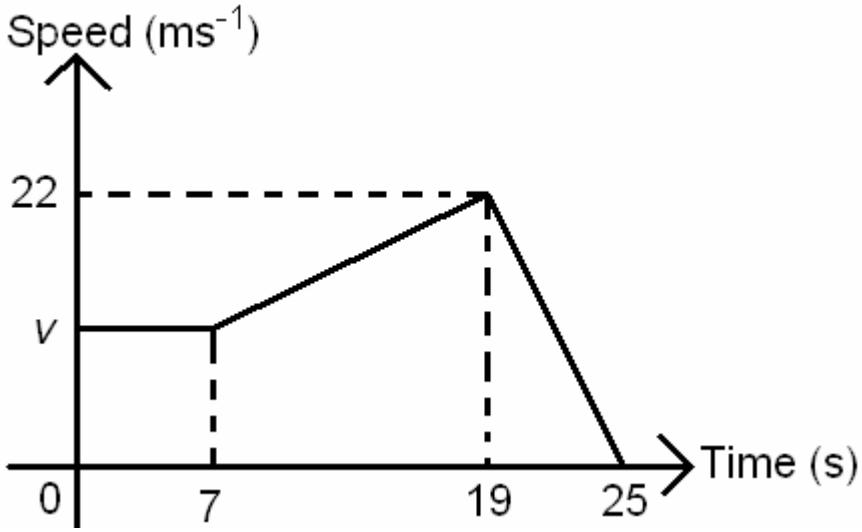

DIAGRAM 10

a) State the length of time, in s, that the particle moves with uniform speed.

b) Calculate the rate of change of speed, in ms^{-2}, in the last 6 seconds.

c) Calculate the value of *v*, given that distance traveled in the last 18s is 270 meters.

11. Diagram 11 shows the speed-time graph of a particle for a period of *t* seconds.

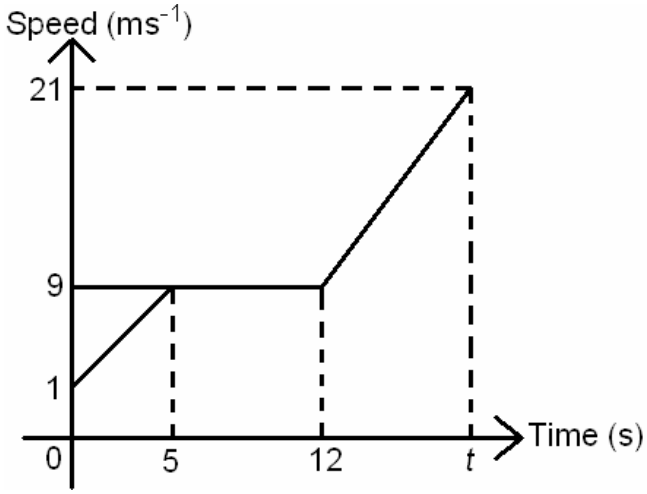

DIAGRAM 11

a) State the length of time, in *s*, that the particle moves with uniform speed.

b) Calculate the rate of change of speed, in ms^{-2}, in the first 5 seconds.

c) Calculate the value of *t*, if the total distance traveled for the period of t seconds is 148 meters.

12. The diagram 12 shows the speed-time graph of a particle for a period of 20 seconds.

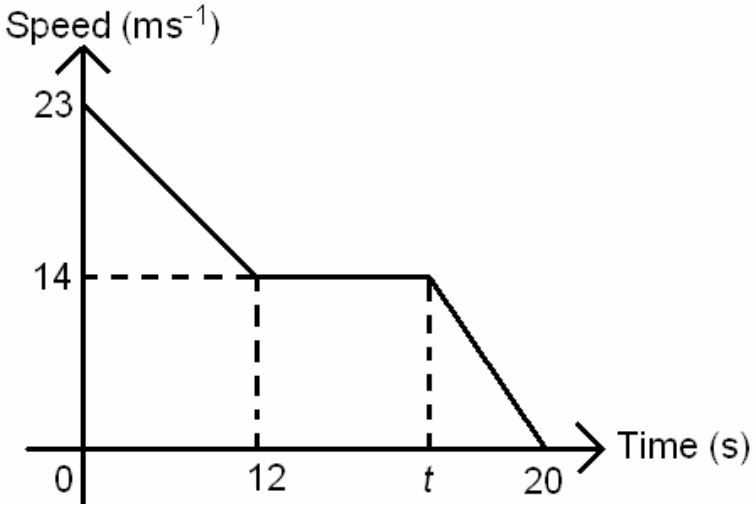

DIAGRAM 12

c) State the uniform speed, in ms^{-1}, of the particle.

d) The distance traveled by the particle with uniform speed is 84 meters. Calculate

i. the value of *t*,

ii. the average speed, in ms^{-1}, of the particle for the period of 20 seconds.

13. Diagram 13 shows the distance-time graph of the journey of a bus and a taxi.

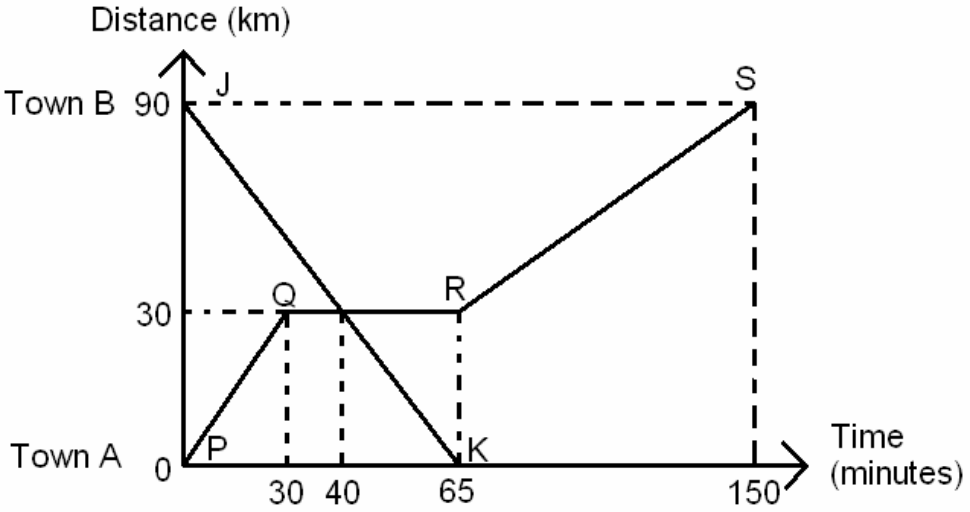

DIAGRAM 13

The graph PQRS represents the journey of the bus from town A to town B. The graph JK represents the journey of the taxi from town B to town A. The bus leaves town A and the taxi leaves town B at the same time and they travel along the same road.

a) State the length of time, in minutes, during which the bus is stationary.

b) i) If the journey starts at 9.00 am, at what time do the vehicles meet?

ii) Find the distance, in km, from town B when the vehicles meet.

c) Calculate the average speed, in kmh^{-1} of the bus for the whole journey.

14. Diagram 14 shows the speed-time graph for the movement of a particle for a period of *t* seconds.

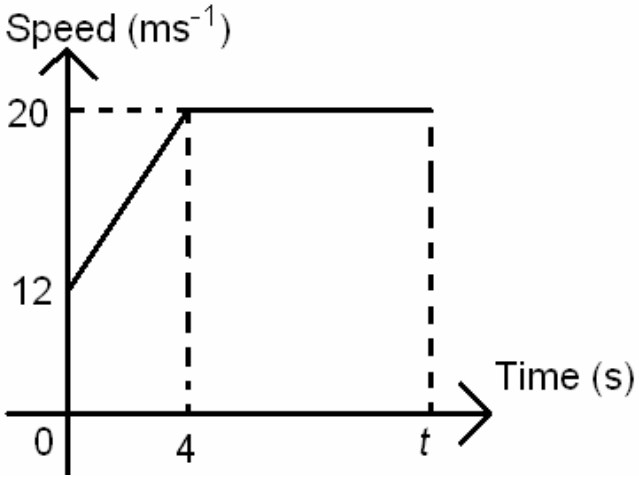

DIAGRAM 14

a) State the uniform speed, in ms^{-1}, of the particle.

b) Calculate the rate of change of speed, in ms^{-2}, of the particle in the first 4 seconds.

c) The total distance traveled in *t* seconds is 184 meters.
Calculate the value of *t*.