

Gateway Science Physics A

J249/02 Physics A P5-P8 and P9 (Foundation Tier)

Question Set 24

The table below shows the stopping distances for a car.

Speed of car (m/s)	Thinking distance (m)	Braking distance (m)	Total stopping distance (m)
8	6	6	12
16	12	24	
32		96	120

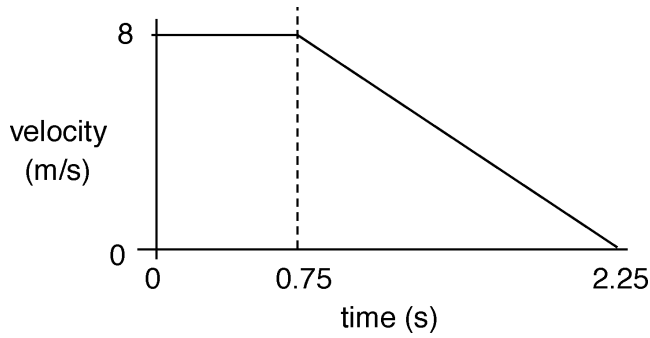
(a)* Analyse the data in the table and use it to describe the trends shown.

Suggest reasons for the differences in the patterns in the data.

[6]

(b) The car takes 6 m to brake when moving at 8 m/s.

Look at the graph of a car travelling at 8 m/s, starting to brake and then stopping.



(i) Calculate the acceleration of the car during braking.

Show your working and state the units.

Answer = Unit =

[4]

(ii) The car has a braking force of 5000 N.

Calculate the work done by the brakes on the car.

Answer = J

[2]

(i) How is the braking distance affected if a driver is tired?

Explain your answer.

[2]

Total Marks for Question Set 24: 14

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