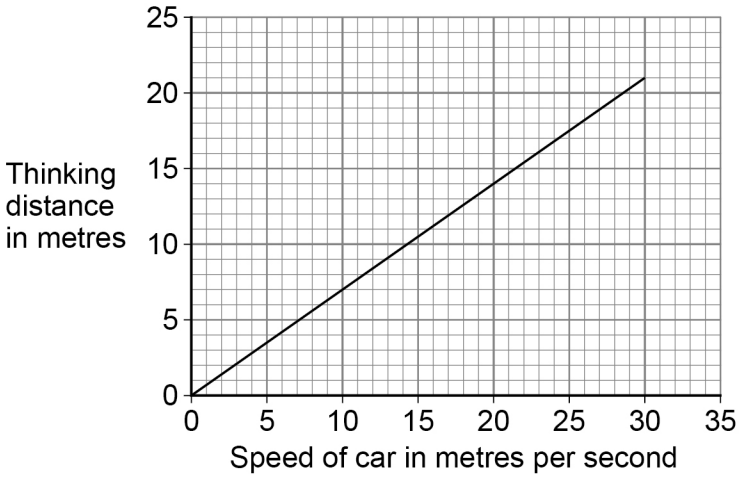
Do not write outside the box

0 6 The distance a car travels during the driver's reaction time is called the thinking distance.

0 6 . 1 **Figure 9** shows how thinking distance depends on speed for a car.

Figure 9



Determine the driver's reaction time.

Use the Physics Equations Sheet.

[3 marks]

Reaction time = _____ s

Question 6 continues on the next page

Turn over ►

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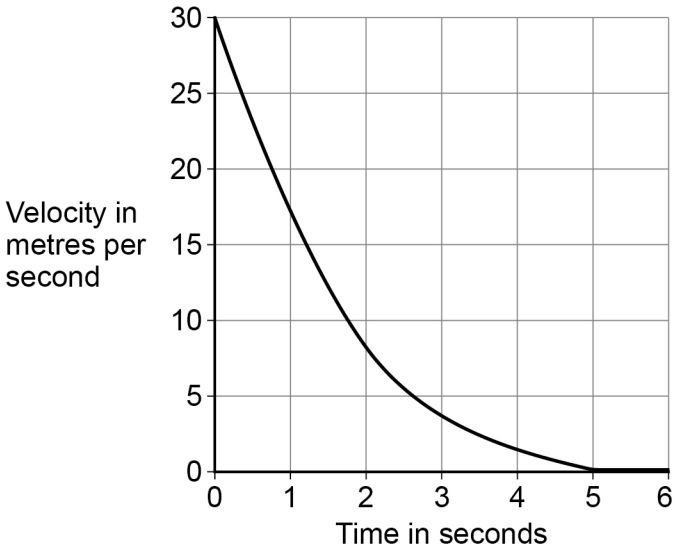
0 6 . 2 **Figure 10** shows how the velocity of a car changes during braking.

Figure 10



Determine the braking distance of the car.

[3 marks]

Braking distance = _____ m

Do not write outside the box

0 6 . 3 Explain how the gradient of the line on **Figure 10** shows that the resultant force on the car was **not** constant.

[3 marks]

9

Turn over for the next question

Question 6

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.1	$21 = 30 \times t$ $t = \frac{21}{30}$ $t = 0.7$ (s)	allow use of any correct pair of values from the graph allow 0.70 (s)	1 1 1	AO2 6.5.4.1.2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.2	one square represents 5 (m) number of squares = 9 braking distance = 9 × 5 = 45 (m)	 allow number of squares in the range 8.5 to 10 allow an answer in the range 42.5 (m) to 50 (m)	1 1 1	AO2 6.5.4.1.2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.3	gradient is equal to acceleration gradient / acceleration is not constant so resultant force is not constant because resultant force is directly proportional to acceleration (for constant mass)	 allow resultant force is not constant because F = ma	1 1 1	AO1 AO3 AO3 6.5.4.2.2

Total Question 6		**9**