Mark scheme

Travel and conversion graphs

Mathematics 0580 · Questions from Paper 1, Paper 2, Paper 3 and Pape…

Total marks

46

MARKS FOR EACH QUESTION

1	2	3	4	5	6	7	8	9	10	Total
2	3	4	4	4	3	6	6	5	9	**46**

Question 1 [2]

1(a)	10	**1**	
1(b)	40	**1**	

Question 2 [3]

2(a)	Student is stationary oe	**1**	
2(b)	13 00 13 20 gradient is steepest	**2**	**B1** for both times correct or correct reason

Question 3 [4]

3	**(a)** Ruled line from (0, 0) to (5, 22.5)	**2**	**B1** for (5, 22.5) **or** (0, 0) at the ends of the ruled line.
	(b) **(i)** 17.5 to 18.5	**1FT**	FT *their* straight line
	(ii) 3.3 to 3.4	**1FT**	FT *their* straight line

Question 4 [4]

4(a)	46	**1**	
4(b)	appropriate explanation e.g. reading at 42 × 10 oe	**1**	accept any correct explanation
4(c)	correct ruled line	**2**	**B1** for any correct plotted point other than (0, 0)

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Question 5 **[4]**

5(a)	$1\frac{2}{3}$ or 1.67 or 1.666 to 1.667	**1**	
5(b)	1062.5	**3**	**M2** for $\frac{25}{2}(50+35)$ oe or **M1** for one area

Question 6 **[3]**

6	Straight line from (20, 14) to (35, 14) and straight line from (35, 14) to (45, 0)	**3**	**M1** for 210 ÷ 14 soi **M1** for 14 ÷ 1.4 or any line with gradient –1.4 ending at *x* axis

Question 7 **[6]**

7(a)	Three correct ruled lines	**3**	**B1** for a line from (2pm, 0) to (2 45, 6) **B1FT** for a line from (*their* 2 45, *their* 6) to (*their* 2 45 + 1, *their* 6) **B1FT** for a line from (*their* 2 45 + 1, *their* 6) to (4 36, 0)
7(b)	4.62 or 4.615…	**3**	**M2** for $\frac{12}{156}\times 60$ oe or **M1** for 12 ÷ their time

Question 8 **[6]**

8 (a)	12.5 oe	**2**	**M1** for 45 × 1000 ÷ 60 ÷ 60 oe
(b)	1.25 oe	**1FT**	**FT** *their* **(a)** ÷ 10
(c)	312.5 oe	**3FT**	**FT** for 25 × *their* **(a)** **M2** for 20 × *their* 12.5 + 0.5 × 10 × *their* 12.5 oe or **M1** for one correct relevant area calculation or **SC2** for final answer 1125

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Question 9 **[5]**

9	$16\frac{1}{4}$ or 16.3	5	**M1** finding the area under graph **A1** 130 **M1** $\frac{1}{2} \times 16 \times v$ **M1** equating and solving

Question 10 **[9]**

10(a)(i)	100	**1**	
10(a)(ii)	92.3 or 92.29… to 92.31	**3**	**M2** for $200 \div (2 + \frac{10}{60})$ oe or **M1** for 200 ÷ *their* time interval or **M1** for $\frac{10}{60}$ soi oe
10(b)(i)	240 nfww	**3**	**M2** for $\frac{V}{2}\left(\frac{30}{60} + \frac{20}{60}\right) = 100$ oe or **M1** for any correct relevant area seen in terms of V
10(b)(ii)	$\frac{2}{9}$ oe	**2FT**	**FT** for *their* **(b)(i)** ÷ 1080 to 3 sf or better **M1** for *their* **(b)(i)** $\times \frac{1000}{3600}$ soi

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