Speed, Distance and Time

1	**4**	30	2	**M1** 108 × 1000 / (60 × 60)
2	**9**	Sunday (May) 25 1045	1, 1, 1	Independent
3	**4**	70	2	**M1** for 252 × 1000 ÷ 60 ÷ 60 oe
4	**2**	21 55	1	Allow 9.55 pm
5	**14**	10.8 or $10\frac{70}{83}$	3	**M1** figs 10 ÷ time **M1** 10 ÷ 0.92r, 0.922 or 83/90
6	**12**	**(a)** (0)8(.)01 (am) **(b)** 78.4 or 78.38 to 78.39	**1** **3**	Not 8.01pm **M2** for 827 ÷ 10.55 or **M1** for figs 827 ÷ their time
7	**10**	**(a)** (0)700 or 7 am **(b)** 1700 or 5 pm	**2** **1**	**M1** 100 – (5 × their(22 – 6) + their(13 – 8)) or better soi
8	**1**	35	**2**	**M1** for $4 \times 8 + 3$ or $4 \times 8\frac{3}{4}$ or $4 \times 8\frac{1}{2} + 1$ or $\frac{525}{15}$ or $\frac{510}{15} + 1$ **SC1** for answer 34
9	**8**	11.3	**3**	**M2** 22 × 1.852 × 1000/3600 oe or **M1** 22 × figs 1852 or 22 × 1000/3600
10	**9**	**(a)** 5 30 pm **(b)** 67	**1** **2**	**M1** for 10h45min and 3h 15min oe seen
11	**3**	1500 or 3 pm	**2**	**B1** for 1h50 or 2h[0]5 or **SC1** for 1255 + *their* 1h50 + 15mins correctly evaluated
12	**19**	**(a)** 40 **(b)** 3.5	**2** **2FT**	**M1** for $\frac{144 \times 1000}{60 \times 60}$ oe FT 140 ÷ *their* **(a)** **M1** for dist ÷ *their* **(a)** or dist ÷ 40 or dist × $\frac{60 \times 60}{144 \times 1000}$ or **B1** for 140 seen
13	**1**	39	**2**	**M1** for 52 × 45 ÷ 60 oe
14	**9** **(a)** **(b)**	119 [0] 1 [00] pm cao	**3** **1**	**M2** for 18 × 6 + 11 oe or **B1** for 18 or 11 or 108

15	**5**	48	**2**	**M1** for 52 ÷ 65 [× 60] oe implied by 0.8
16	**13**	72	**3**	**M2** for $\frac{1280}{64} \times \frac{60 \times 60}{1000}$ **M1** for working out distance ÷ speed e.g. figs 1280 ÷ 64 or figs $\frac{1280}{\textit{their speed}}$ or for working out km/h to m/s conversion e.g. $64 \times \frac{1000}{60 \times 60}$ oe or *their* $\left(\frac{1280}{64}\right) \times \frac{60 \times 60}{1000}$ oe
17	**2**	9 [h] 30 [min] cao	**1**	
18	**14**	19 nfww	**4**	**B3** 19.3 or 19.28 to 19.29 or **M2** for $\frac{300 \times 60^2}{56 \times 1000}$ oe or **M1** for distance divided by speed e.g. *their* 300 ÷ *their* 56 or $\frac{56 \times 1000}{60^2}$ If **B0** then **B1** for seeing their answer in decimal form correctly written to the nearest integer
19	**19**	95	**4**	**B1** for 2.3 or $2\frac{18}{60}$ **M1** for 75 ÷ 30 (= 2.5) **M1** for $\frac{381 + 75}{\textit{their } 2.3 + \textit{their } 2.5}$
20	**1**	8(h) 52 (min)	**1**	
21	**18**	1.38 or 1.381 to 1.382	**3**	**M2** for $(36 + 4.3) \div (105 \times \frac{1000}{60 \times 60})$ oe or **M1** for $105 \times \frac{1000}{60 \times 60}$ or for a distance ÷ a speed or **SC2** for answer 1.23(4...)
22	**1**	Wednesday 22 15 or 10 15pm	**2**	**B1** **B1**
23	**1**	8(h) 52 (min)	**1**	

24	**20**	**(a)**	$\frac{3mx}{50}$ or $0.06mx$	**2**	**M1** for $m \times x \times 60 \div 1000$ oe
		(b)	35	**2**	**M1** for $5 \times x \times 60 \div 1000 = 10.5$ oe or for substituting $m = 5$ in *their* **(a)** and equating to 10.5 oe

25	**19**	**(a)**	6, 30, 70	2	**B1** for 2 correct
		(b)	graph	3	**P2** 7 plots correct from table **P1** 5 or 6 plots correct from table **C1** smooth curve through the points in the given range within one small square of the plots or the correct position
		(c)	82.5 or ft ±1	1**ft**	
		(d)	108 or ft ±1	1**ft**	

26	**9**	**(a)**	*A*	**1**	
		(b)	A ruled line joining (65, 23) to (80, 28)	**1**	

27	**16**	$16\frac{1}{4}$ or 16.3	5	**M1** finding the area under graph **A1** 130 **M1** $\frac{1}{2} \times 16 \times v$ **M1** equating and solving

28	**19**	**(a)**	$\frac{3}{4}$ or 0.75	1	
		(b)	2.6	3	**M1** for finding the area under the graph or **M1** for their $39 \div 15$

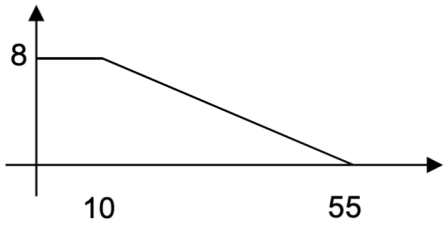
29	**18**	**(a)** **(i)**	Tangent	1	Correct tangent drawn
		(ii)	4.4 to 6	2	dep **M1** attempting to find gradient of their tangent
		(b)	780	2	**M1** evidence of finding the area under the graph ONLY from $t = 12$ to $t = 25$

30	**21**	**(a)**	2	1	
		(b)	6.7 to 7.3	1	
		(c)	203	3	**M1** intention to find area under the graph **M1** $\frac{1}{2} \times 7 \times 14 + 9 \times 14 + \frac{1}{2} \times 4 \times 14$ oe

31	**21**	**(a)** 2.4 oe	1	
		(b) 680	3	**M1** an area found **M1** $40 \times 20 - \frac{1}{2} \times 20 \times 12$ oe
32	**19**	**(a)** 480	**1**	
		(b) 9900	**3**	**M1** for attempt at area under graph **M1** for $0.5 \times 15 \times$ (their **(a)** $+ 14 \times 60$) oe or $0.5 \times 15 \times (8 + 14)$ oe
		(c) 0.125 or $\frac{1}{8}$	**2**	**M1** for numerical vertical/horizontal or numerical use of $v = u + at$ but $t \leq 120$ or $t \leq 2$
33	**22 (a)**	159	**3**	**M1** evidence of using area under graph **M1** stating area correctly
	(b) (i)	50	**2**	**M1** $3 \times (1000/60)$ oe
	(ii)	0.208	**2**	**M1** evidence of numerical rise/run or use of $(v - u)/t$
34	**15**	**(a)** 156	**4**	**M1** intention to find area under graph **B2** completely correct area statement or **B1** two areas found correctly (or one trapezium area)
		(b) 12	**1ft**	Their **(a)**/13
35	**12**	80 www	**4**	**M1** attempting area under the graph **M1** large or small car area found correctly **Dep M1** correct final area statement
36	**23**	**(a)** 0.133 (3…) or $\frac{2}{15}$	**2**	**M1** for $40 \div 300$ seen
		(b) $33\frac{1}{3}$ or 33.3	**3**	**M1** for area under graph attempted **M1** for correct total area statement
37	**18 (a)**	0.8	**1**	
	(b)	1850	**4**	**M1** for area = distance travelled **M1** for two correct area statements **M1** for complete correct area statement
38	**10 (a)**	50	**1**	
	(b)	15	**2**	**M1** finding area under graph **SC1** 15000
39	**19**	6(.00) **www**	**4**	**M1** use of area = distance **M1** complete, correct set of area statements, ignoring units **M1** changing min to hours or km/h to km/min

40	**15**	180 **www**		**3**	**M1** ½ × 60 × 14 oe **M1** their 420 – 4 × 60
41	**15**	**(a)** 3		**1**	
		(b) 637.5		**3**	**M1** finding area under graph **M1dep** all correct area statements
42	**19**	**(a)** 0.625 or 5/8		**1**	
		(b) 62		**3**	**M1** for area under graph implied **M1** for correct, complete, area statement
43	**25**	**(a)** 2.8 oe		**1**	
		(b) 700		**3**	**M2** for ½(20 + 30) × 28 oe or **M1** for a correct area statement
44	**16**	15		**4**	**M2** for $\frac{1}{2}\times 40\times(26+19)$ oe or **M1** for one valid area calculation **Indep M1** for ÷ 60 **SC3** for answer 900
45	**10**	2520		**3**	**M2** for 12 × (1 + 6) ÷ 2 oe or **M1** for 1 area correct If zero scored **B1** for top speed = 720 m per min or total time = 360 sec
46	**23**	**(a)** 0.4 or $\frac{2}{5}$		**1**	
		(b) 1430		**3**	**M2** for correct, complete, area statement e.g. $120\times 10+\frac{1}{2}\times 20\times 8+\frac{1}{2}\times 30\times 10$ oe or **M1** for one area calculation e.g. 10×120 or $\frac{1}{2}\times 20\times 8$ or $\frac{1}{2}\times 30\times 10$
		(c) 11.9 or 11.91 to 11.92		**1FT**	*their* **(b)** ÷ 120
47	**12**	**(a)** 5		**3**	**M2** for $\frac{u\times 10}{2}+2u\times 10=125$ oe or **M1** for evidence that area represents distance e.g. $\frac{u\times 10}{2}$, $2u\times 10$ or $3u\times 10$
		(b) 2		**1FT**	**FT** 10 ÷ *their u* correctly evaluated

48

20	**(a)**		**B1** **B1**	line from (0, 8) to (10, 8) line from *their* (10, 8) to (55, 0)
	(b)	260	**3FT**	**M2FT** for $8 \times 10 + 0.5 \times 8 \times 45$ oe or for a fully correct area calculation for *their* graph or **M1FT** for 8×10 or $0.5 \times 8 \times 45$ or for one correct area calculation for *their* graph

49

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

50

17(a)	2200	**3**	**M2** for $\frac{1}{2}(90+130)\times 20$ or $\frac{1}{2}(10 \times 20) + (90 \times 20) + \frac{1}{2}(30 \times 20)$ or **M1** for one area

51

17	30	**3**	**M2** for ½ (8 + 2) × *v* [= 150] oe or **M1** for ½ × 6 × *v* or 2 × *v* oe

52

17(a)	0.1 or $\frac{1}{10}$	**1**	
17(b)	90	**3**	**M2** for $\frac{1}{2}\times 10\times 2+10\times 2+\frac{1}{2}(2+4)\times 20$ oe or **M1** for one area calculation or indicated on diagram