Speed & Distance & Time

1	2	(a)	3 correct lines on grid (0, 0) to (40, 5) (40, 5) to (100, 5) (100, 5) to (120, 0)	2	Allow good freehand **SC1FT** for 2 lines correct, **FT** from an incorrect line
		(b)	$\dfrac{5}{40}$ oe	1	
		(c)	3.75	4	**M2** for $0.5 \times 40 \times 5 + 60 \times 5 + 0.5 \times 20 \times 5$ oe [450] or **M1** for evidence of a relevant area = distance and **M1**dep *their* area (or distance) ÷ 120
2	8	(a)	$\dfrac{2(s - ut)}{t^2}$ oe nfww	3	**M1** for a correct rearrangement to isolate the a term and **M1** for a correct multiplication by 2 and **M1** for a correct division by t^2
		(b)	36.75 cao	3	**M2** for $15.5 + 2.5 \times 8.5$ **B1** for two of 15.5, 2.5, 8.5 seen
		(c) (i)	$\dfrac{16}{5}$ or better [3.2]	1	
		(ii)	11.2	4	**M2** for ½(25 + 10)16 (= 280) or **M1** for appreciation of distance from area and **M1** for *their* 280 ÷ 25 (dep on M1)
3	2	(a)	8	2	**M1** for 12 ÷ 1.5 oe
		(b)	[Distance =] 36 *their* 36 ÷ 3 [= 12] oe	B1 M1	
		(c)	200	2	**M1** for 12 × 1000 ÷ 60 oe e.g. 36 000 ÷ 180
		(d)	Horizontal line at 36 to 13 45 (*their* 13 45, 36) joined to (16 42, 0)	1 1FT	
4		(c) (i)	0.75 × 20 [=15]	1	
		(ii)	150 cao	4	**M3** for $90 + T = 1800 \times 2 \div 15$ oe or $T - 110 = (1800 - (90 \times 15) - (20 \times 15 \div 2)) \times 2 \div 15$ oe or $t = (1800 - (90 \times 15) - (20 \times 15 \div 2)) \times 2 \div 15$ oe [$t = 40$] or **M2** for ½ (90 + T) × 15 = 1800 oe or ½ (T − 110) × 15 + 90 × 15 + ½ (20 × 15) = 1800 oe or 1800 − ½ × 20 × 15 − 90 × 15 oe [300 for area of 'end' triangle] or **M1** for method for area of triangle or rectangle or trapezium soi

5	(b)	(i)	$\frac{9}{200}$ or 0.045	1	
		(ii)	10800	3	**M2** for ½ (900 + 1500) × 9 oe
					or **M1** for method of finding a relevant area
		(iii)	7.2	1FT	**FT** (*their* 10800) ÷ 1500
6	11		[Total time =]16 h 6 min or 16.1 h	2	**B1** for 22 h 6 min or 22.1h or 966 mins If 0 scored, **SC1** for 9 h 41 min
			[Distance to airport in New York =] 16.5	2	**M1** for 18 × 55
			[Arc length =] 6200 or 6199 to 6200. …	3	**M2** for $\frac{55.5}{360} \times 2 \times \pi \times 6400$ or **M1** for $\frac{55.5}{360}$ or $2 \times \pi \times 2400$
			[Distance Geneva to Chamonix =] 104	2	**M1** for 65 × 1.6 or 65 × 96 oe
			392 to 393	2	**M1** for $\dfrac{6316 \text{ to } 6322.4}{their\,16.1}$ Must be correct value in numerator