Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
14 **Q1**	11 – 19	P1	for drawing a tangent to the curve at time = 5	
		P1	for process to find the gradient, eg 70 ÷ 5	Using their drawn tangent, eg change in y ÷ change in x
		A1	(dep on 1st P1) for answer in the range 11 - 19 m/s	Must come from gradient of a tangent.

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
14 (a)(i)	0.83	B1	for a tangent drawn at $t = 15$	Working: $7.5 \div 9 = 0.83....$ No tangent scores 0 marks
		M1	full method to use the tangent to find the gradient (eg $7.5 \div 9$)	This mark can be awarded if the tangent is drawn at $t \neq 15$ Working may be seen on the diagram
		A1	for answer in the range 0.6 to 1.0	
(ii)	Statement	C1	statement **Acceptable examples** acceleration rate of change of speed increase in speed over time **Not acceptable examples** rate of change m/s/s increase in speed	
(b)	220	P1	for splitting the area into strips and correct process to find the area of one strip, eg $\frac{5 \times 4}{2}$ (=10) **or** $\frac{(4+12)}{2} \times 5$ (=40) **or** $\frac{(12+18)}{2} \times 5$ (=75) **or** $\frac{(18+20)}{2} \times 5$ (=95)	Working 4, 12, 18, 20
		P1	for a complete process using at least 4 strips to find the area under the curve eg, "10" + "40" + "75" + "95"	Allow one error in the reading of speeds
		A1	for answer in the range 215 to 225 from correct working using at least 4 strips	

Q2

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
15	0.7 to 1.1	M1	for tangent to the curve drawn at $t = 12$	
		M1	for method to find the gradient of their tangent, eg $28 \div 30$	Working may be seen on the diagram
Q3		A1	for answer in the range 0.7 to 1.1 dependent upon tangent drawn	Ignore negative signs

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
19 **Q4**	3.4	M1	for drawing a suitable tangent at $t = 6$	
		M1	for a full method to find the gradient of the tangent at t=6, eg $20 \div 5.8$	Use of change in y over change in x
		A1	answer in the range 3.05 to 3.7	Answers of $\frac{10}{}$ oe scores no marks

Paper: 1MA1/2H

Question	Answer	Mark	Mark scheme	Additional guidance
21 (a)	1.06	M1	for tangent drawn at t =17.5	No tangent drawn at t=17.5 scores zero marks
		M1	for a complete method to find the gradient, eg tangent drawn at t = 17.5, and 18.5 ÷ 17.5	Use of change in y over change in x Working may be seen on the diagram
		A1	answer in the range 0.9 to 1.2	Answer of $\frac{10.5}{17.5}$ oe scores no marks Accept answers in the form a/b where a and b are integers
(b)	Explanation	C1	suitable explanation, eg the rate of change of volume	If units are given they must be correct.

Q5

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
14 (a)	0.9	M1	for drawing a tangent at $t = 2$	
		M1	for a complete method to find the gradient eg tangent at $t = 2$ and "2.7" ÷ "3"	Use of change in y over change in x Working may be seen on the diagram
		A1	for answer in the range 0.7 to 1.1	Accept answers in the form $\dfrac{a}{b}$ where a and b are integers
(b)	Statement	C1	eg distance (travelled)	If units are given they must be correct

Q6