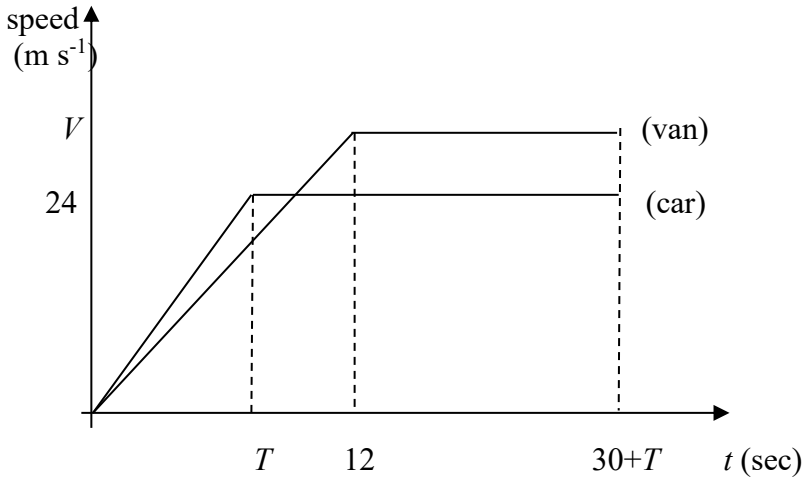
Question Number	Scheme	Marks
5(a)		B1 shape of either B1 shape of second (must cross first and end at the same time) B1 V, 24, 12, T, $30+T$ Allow with their values of V and T. **N.B**. if they don't end at the same time, allow the 3rd B1, if they have $30+T$ at the end of one of them.
		(3)
(b)	CAR: Using Areas: $\frac{1}{2}(T+30+30)\times 24=816$ **or** $\frac{1}{2}\times T\times 24+(24\times 30)=816$ Using *suvat*: $816-(24\times 30)=96$ $24^2=2a\times 96\Rightarrow a=3$ $24=3T$ or $96=\frac{1}{2}\times 3T^2$	M1A1
	$T=8$	A1
		(3)

(c)	VAN: Using Areas: $\frac{1}{2}\left(\left('8'+30\right)+\left('8'+18\right)\right)V=816$ **or** $\frac{1}{2}\times 12V+V(18+'8')=816$ Using *suvat*: $12\times('8'+18)a+\frac{1}{2}a\times 12^2=816 \Rightarrow a=2.125$ $V=12\times'2.125'$	M1A1**ft**
	$V=25.5$	A1
		(3)
		9
	Notes	
(a)	**N.B.** If graphs are on separate axes, can score Max B1B0B0	
B1	Correct shape of either graph. **N.B.** B0 ONCE if there is a continuous vertical line at the end.	
B1	Correct shape of second graph which must cross the first graph and end at the same time.	
B1	V, 12, 24, T and $T+30$ placed correctly	
	N.B. All 3 marks can be earned if they have $V<24$ and $T>12$ on their graph.	
(b)		
M1	Complete method to find an equation in T *only* using 816 distance travelled by CAR, using either areas with *correct structure* (ignore what they have on their diagram) or *suvat*.	
A1	A correct unsimplified equation in T only.	
A1	8	
	N.B. M0 if they assume that the total time is 30 or 42 when setting up the equation.	
(c)		
M1	Complete method to find an equation in V *only* using 816 distance travelled by VAN, using either areas with *correct structure* (ignore what they have on their diagram) or *suvat*.	
A1ft	A correct unsimplified equation in V only, using their T	
A1	25.5 oe	
	N.B. M0 if they assume that the total time is 30 or 42 when setting up the equation.	