9	**(a)**		$8 = 20 + 30a$	**M1**	**3.4**	Use of $v = u + at$ with given values (allow $v = 20$ and $u = 8$)	
			$a = -0.4$ so deceleration is $0.4\ (\text{m s}^{-2})$	**A1**	**1.1**	Allow 0.4 or –0.4	
				[2]			
9	**(b)**		Distance travelled by B: $12t$	**B1**	**1.1**	Or first 30 seconds: B travels 12(30) (= 360)	
			Distance travelled by A: $\frac{1}{2}(8+20)(30)+8(t-30)$ or $\frac{1}{2}(30)(12)+8t$	**B1**	**1.1**	Or first 30 seconds: A travels $0.5(8+20)(30)$ $(=420)$	
			$12t = '420' + 8t - '240'$	**M1**	**3.1b**	M1 for a (possibly unsimplified) correct equation/inequality in t where '360' and '420' must have been correct unsimplified e.g. $'420' - '360' = (t-30)(12-8)$, $12(t-30) + '360' = 8(t-30) + '420'$, $'420' + 8(t-30) = 12t$ etc. Or for a correct equation in another time variable e.g. $12T + '360' = 8T + '420'$ **and** $T = t - 30$ seen or implied	If an inequality used, then allow incorrect direction or strict inequality symbol for this mark
			$t = 45$	**A1**	**1.1**	Allow $t > 45$ ⇒ $t = 45$	
				[4]			