Question Number	Answer		Mark
12(a)	The (massive) planet exerts a (large) gravitational force on the star.	(1)	
	The velocity of the star relative to the Earth changes.	(1)	
	(which causes a varying) Doppler shift	(1)	**3**
12(b)	Use of $\frac{\Delta\lambda}{\lambda} = \frac{v}{c}$	(1)	
	$v = 220 \text{ m s}^{-1}$	(1)	**2**
	Example of calculation $v = \frac{3.19 \times 10^{-13} \text{ m}}{4.35 \times 10^{-7} \text{ m}} \times 3.0 \times 10^{8} \text{m s}^{-1} = 220 \text{ m s}^{-1}$		
	Total for question 12		**5**