

8	(a)		$s = 4d$	B1 [1]	1.1		
8	(b)		$2.4U - \frac{1}{2}g \times 2.4^2 = 0$ $U = 11.76 \text{ ms}^{-1}$	M1 A1 [2]	3.3 1.1	Use of $s = ut + \frac{1}{2}at^2$ correctly with $s = 0$, $a = \pm g$ and time equal to 2.4 or $v = u + at$ with $t = 1.2$, $v = 0$ and $a = \pm g$ Accept 1.2g or awrt 11.8 (accept -11.76)	oe use of other <i>suvat</i> equation(s) but must be a complete method to find U From $-g$
8	(c)		$d = \left(\frac{5}{3}d\right)t$ $h = Ut - \frac{1}{2}gt^2$ $h = 5.292 \text{ m}$	B1 M1 A1 [3]	1.1 3.3 1.1	oe - where t is the time for P to reach the wall Use of $s = ut + \frac{1}{2}at^2$ correctly with $a = \pm g$ and their U , t $\left(h = 11.76(0.6) - 0.5(9.8)(0.6)^2\right)$ Accept 5.29	e.g. $t = 0.6$ M0 if their t is 2.4 or 1.2 or if their U is $5d/3$ (or in terms of d), M0 if $t = f(d)$ Not 5.30
8	(d)		$v_1 = U - gt$ or $v_1^2 = U^2 - 2gh$ $\sqrt{\left(\frac{5}{3}d\right)^2 + ('U' - 9.8 \times 't')^2} (=16)$ $\sqrt{\left(\frac{5}{3}d\right)^2 + (11.76 - 9.8 \times 0.6)^2} = 16$ $d = 8.93$	M1* M1dep* A1ft A1 [4]	3.3 3.4 1.1 1.1	Use of a correct <i>suvat</i> equation(s) to find the vertical speed v_1 at the top of the wall using either their U and t or their U and h For reference: ($v_1 = 11.76 - g(0.6)$ or $v_1^2 = 11.76^2 - 2g(5.292)$) - may be seen in expression for speed Setting up an expression of the correct form for the speed or the speed squared in terms of d only (using their v_1) ‘Correct’ equation in d following through their value for U (and h) only Accept 8.92 (from using 11.8) www	For reference $v_1 = 5.88$ M0 if vertical speed or U is in terms of d All other terms must be correct 8.928 225 80...