

Marks		Notes
3a	B1	Normal reaction between $A$ and the plane seen or implied, $\cos \alpha$ does not need to be substituted.
	B1	$F = \frac{2}{3} R$ seen or implied anywhere, including part (b)
	M1	Form an equation of motion for $A$ . Must include all relevant terms. Must be the correct mass but condone consistent missing $m$ 's. Condone sign errors and sin/cos confusion
	A1	Correct unsimplified equation ( $F$ does not need to be substituted). Allow consistent use of $(-a)$ <b>N.B.</b> If $T - 2mg = 2ma$ is seen with no working, M0A0 unless both B1 marks have been scored.
	M1	Form an equation of motion for $B$ . Must be the correct mass on RHS but condone consistent missing $m$ 's. Condone sign errors and sin/cos confusion.
	A1	Correct unsimplified equation ( $F$ does not need to be substituted). Allow consistent use of $(-a)$
		<b>N.B.</b> Allow the 'whole system' equation to replace the equation for $A$ or $B$ . $3mg - F - 2mg \sin \alpha = 5ma$ Must be the correct mass on RHS but condone consistent missing $m$ 's. Condone sign errors and sin/cos confusion.
	M1	Complete method to give an equation in $T$ , $m$ and $g$ only. <b>N.B.</b> Allow $\theta$ in the equation if they have defined what $\theta$ is: e.g. $\theta = \tan^{-1}(\frac{5}{12})$ This is an <u>independent</u> mark but they must have two simultaneous equations in $T$ and $a$ unless one of the equations is the whole system equation in which case one equation will be in $T$ and $a$ and the other equation will be in $a$ only.
	A1*	Obtain the <b>given answer</b> from correct working using EXACT trig ratios. (not available if using a decimal angle)
3b	M1	Comparison of their $F_{\max} (\frac{2}{3} R)$ and their component of weight down the slope, must be comparing numerical values. oe e.g. if they consider the difference <b>N.B.</b> Allow comparison of $\mu$ and $\tan \alpha$ with numerical values
	A1	Correctly justified conclusion and no errors seen <b>N.B.</b> If they equate their difference to an ' $ma$ ' term then A0
3c	B1 B1	Deduct 1 mark for each extra (more than 2) incorrect answer up to a maximum of 2 incorrect answers. Ignore extra correct answers. e.g. two correct, one incorrect B1 B0 one correct, one incorrect B1 B0 one correct, two incorrect B0 B0 Ignore incorrect reasons or consequences. Ignore any mention of wind or a general reference to friction.