Question	Sehomo	Morke	A O c
Question	Scheme	IVIALKS	AUS
3 (a)	Resolve perp to the plane	M1	3.1b
	$R + 25 \sin 30^\circ = 3g \cos 20^\circ$	A1	1.1b
	Equation of motion up the plane	M1	3.1b
	$25\cos 30^{\circ} - 3g\sin 20^{\circ} - F = 3a$	A1	1.1b
	F = 0.3R	B1	1.2
	Correct strategy: sub for <i>F</i> and solve for <i>a</i>	M1	3.1b
	$a = 2.4 \text{ or } 2.35 \text{ (m s}^{-2})$	A1	2.2a
		(7)	
(b)	e.g. Include air resistance	B1	3.5c
		(1)	
(c)	$R = 3gcos20^\circ$ so $Fmax = 0.9 gcos20^\circ$	B1	3.1b
	Consider $3g\sin 20^\circ - 0.9g\cos 20^\circ$	M1	2.1
	Since > 0 , box moves down plane. *	A1*	2.2a
		(3)	
(11 marks)			
Notes:			
 (a) M1: Using an appropriate strategy to set up first of two equations, with usual rules applying A1: g does not need to be substituted M1: Using an appropriate strategy to set up second of two equations, with usual rules applying A1: Neither g nor F need to be substituted (-1 each error) B1: F = 0.3R seen M1: Correct overall strategy to solve problem by substituting for F and solving for a A1: Only possible answers, since g = 9.8 used. (b) B1: e.g. include air resistance, allow for the weight of the rope 			
(c)			

B1: Correct overall strategy (First equation could be implied)

M1: Must be difference or a comparison of the two values

A1*: Given answer