Question	Scheme	Marks	AOs
7(a)(i)	$h = 3\text{m} \times 0.6^2 = 1.08\text{m}$ or e.g. $h = 5\text{m} \times 0.6^3 = 1.08\text{m}$	B1	2.1
(a)(ii)	$d = 5 + 2(3 + 1.8 + 1.08 + 0.648)$ or $d = 5 + 2\dfrac{3(1-0.6^4)}{1-0.6}$	M1	3.4
	$= 18.056$ m	A1	1.1b
		(3)	
(b)	$D = 5 + 2\left(\dfrac{3}{1-0.6}\right)$	M1	3.1b
	$= 20$	A1	1.1b
		(2)	
(c)	e.g. • The model predicts that the ball will continue to bounce indefinitely when in reality it will stop bouncing after a certain number of bounces so the total distance travelled will be less than 20 m. • The diameter of the ball has not been taken into consideration • There could be some horizontal motion • There may be air resistance	B1	3.5b
		(1)	
			(6 marks)

Notes

(a)(i)
B1: Correct explanation
(a)(ii)
M1: Applies a correct strategy for the distance either by adding terms or using the GP sum formula
A1: For awrt 18.1 m
(b)
M1: Recognises the infinite geometric series and applies the sum to infinity formula and adds 5
A1: Correct value
(c)
B1: Makes a suitable comment - see scheme for some possible responses