Question 1 **(25 marks)**
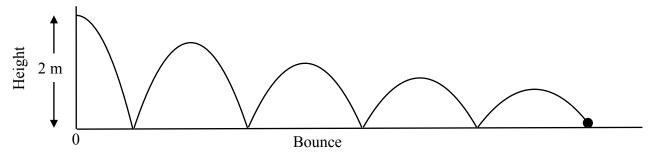
Mary threw a ball onto level ground from a height of 2 m. Each time the ball hit the ground it bounced back up to $\frac{3}{4}$ of the height of the previous bounce, as shown.

(a) Complete the table below to show the maximum height, **in fraction form**, reached by the ball on each of the first four bounces.

Bounce	0	1	2	3	4
Height (m)	$\frac{2}{1}$				

(b) Find, in metres, the total vertical distance (up and down) the ball had travelled when it hit the ground for the 5th time. Give your answer in fraction form.

(c) If the ball were to continue to bounce indefinitely, find, in metres, the total vertical distance it would travel.