20   **In this question use $g = 9.8\,\mathrm{m\,s}^{-2}$**
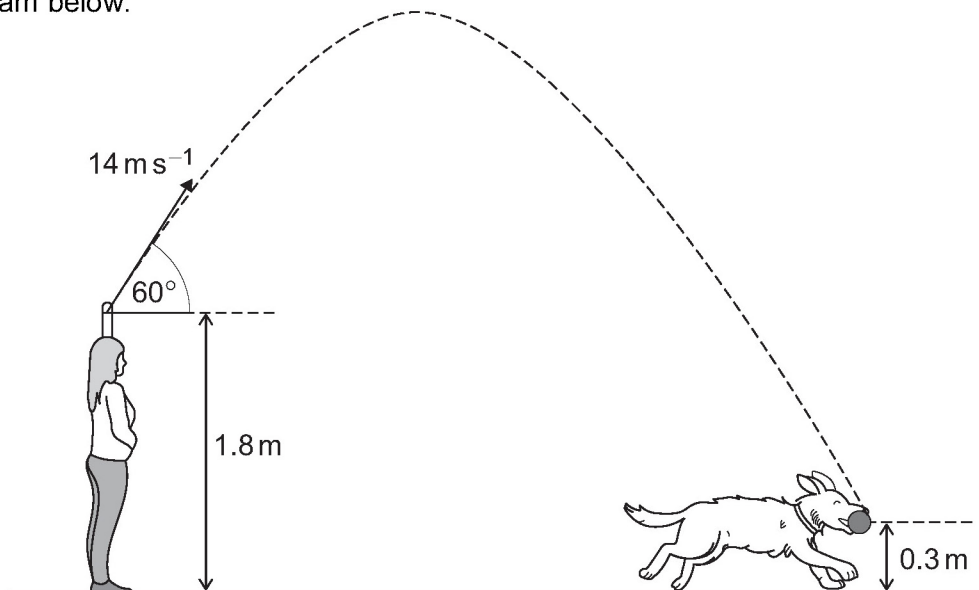
Nell and her pet dog Maia are visiting the beach.

The beach surface can be assumed to be level and horizontal.

Nell and Maia are initially standing next to each other.

Nell throws a ball forward, from a height of 1.8 metres above the surface of the beach, at an angle of 60° above the horizontal with a speed of $14\,\mathrm{m\,s}^{-1}$

Exactly 0.2 seconds **after** the ball is thrown, Maia sets off from Nell and runs across the surface of the beach, in a straight line with a constant acceleration $a\,\mathrm{m\,s}^{-2}$

Maia catches the ball when it is 0.3 metres above ground level as shown in the diagram below.

Find a

[7 marks]