Leave blank

1. A cyclist and his bicycle have a total mass of 75 kg. The cyclist is moving down a straight road that is inclined at an angle α to the horizontal, where $\sin\alpha = \frac{1}{15}$

The cyclist is working at a constant rate of 56 W. The magnitude of the resistance to motion is modelled as a constant force of magnitude 40 N. At the instant when the speed of the cyclist is $V\,\text{m s}^{-1}$, his acceleration is $\frac{1}{3}\,\text{m s}^{-2}$

Find the value of V.

(5)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Leave blank

Question 1 continued

Q1

(Total 5 marks)