

- 3 In the presence of air resistance, a cyclist and his bicycle of total mass 80.0 kg is able to coast down a smooth slope at a constant speed of  $1.4 \text{ m s}^{-1}$  as shown below.



The air resistance is directly proportional to the cyclist's speed.

What is the additional force that the cyclist must apply in order to descend the same slope at a steady speed of  $5.5 \text{ m s}^{-1}$ ?

A 200 N

B 340 N

C 2200 N

D 3800 N